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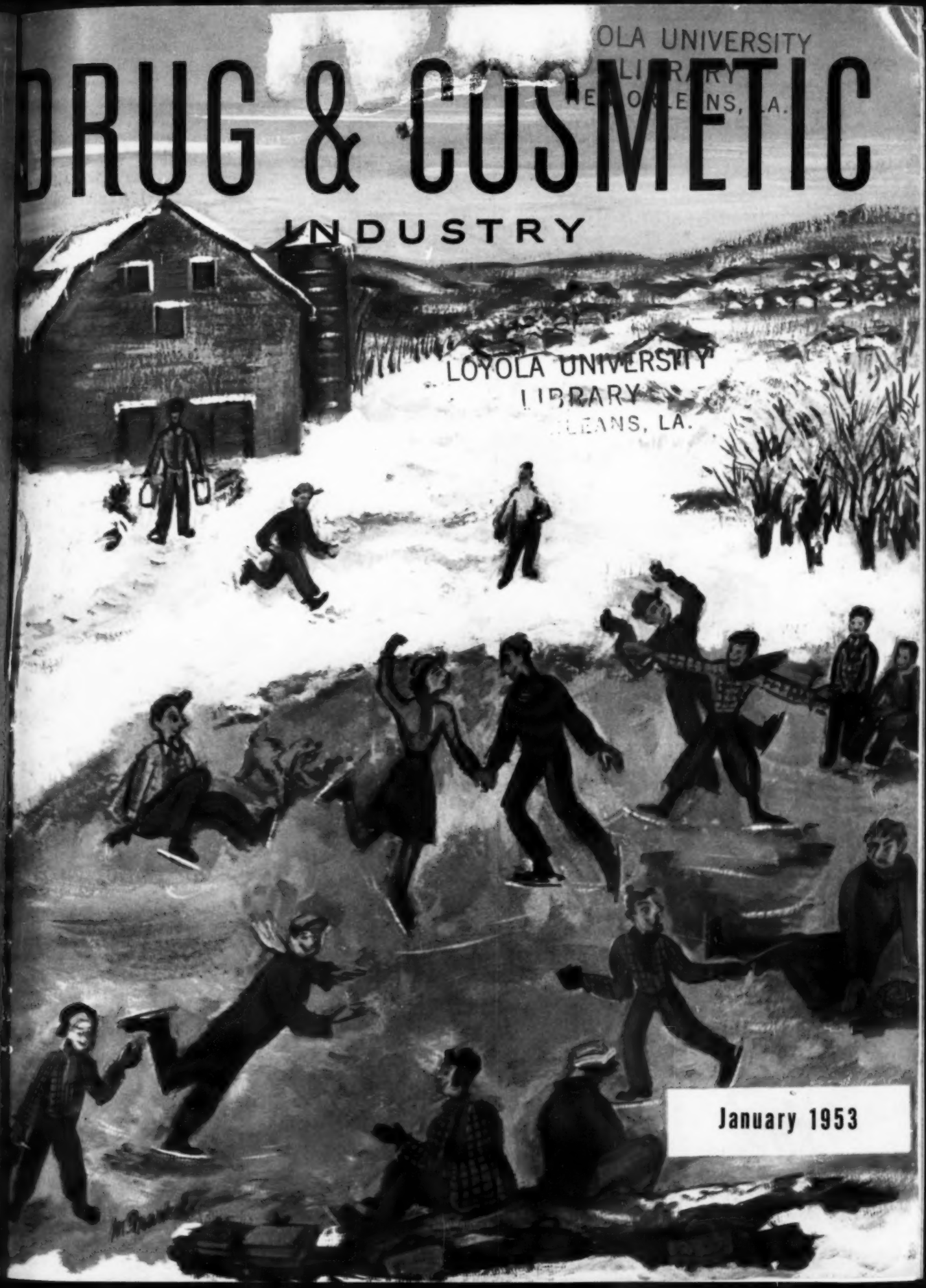
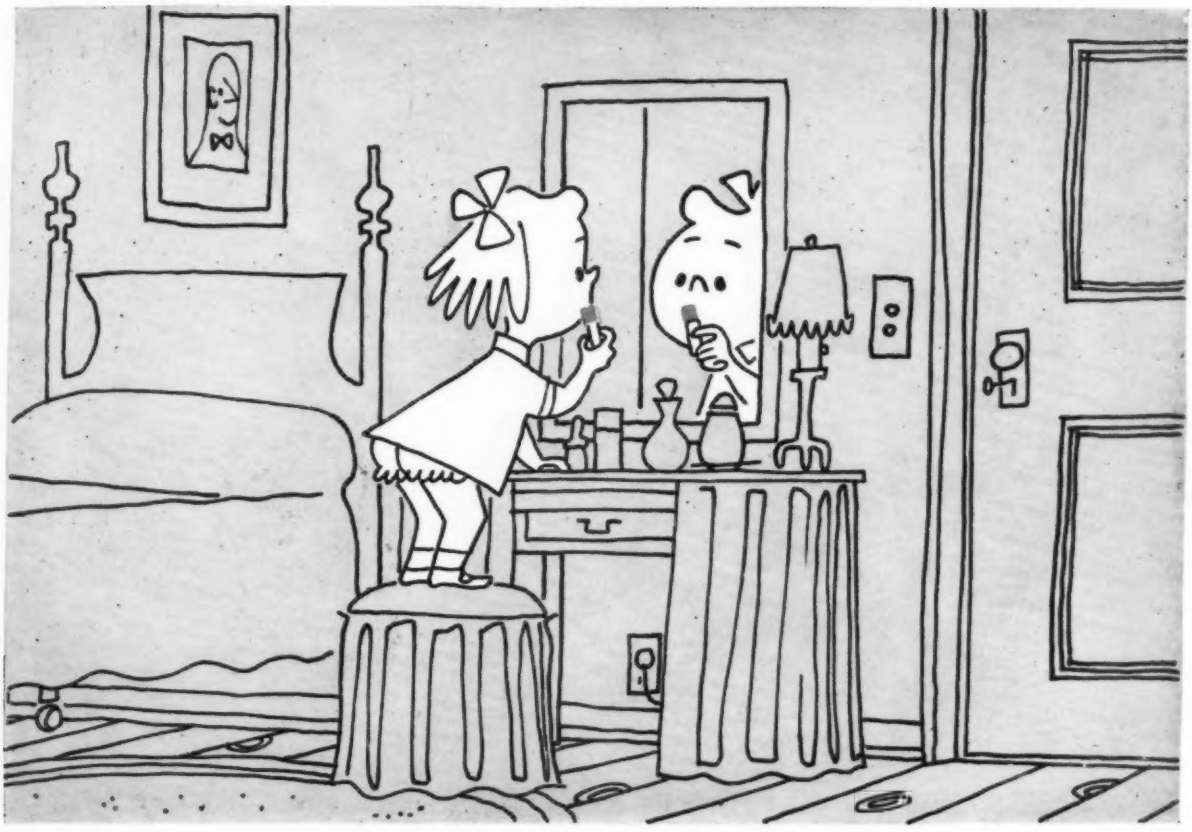


January 1953

When a lady looks bewitching



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Q. *What is Roche vitamin A?*

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Q. *Does Roche vitamin A have a "fishy" odor or taste?*

A. None whatever, nor is there any "fishy burp." In fact, Roche vitamin A has almost no odor or taste and so is preferred for pharmaceutical preparations.

Q. *Will I be able to get a steady supply of Roche vitamin A?*

A. You will. The entire commercial needs of the food and pharmaceutical industries of the United States and Canada could be met from our Nutley plant.

Q. *Can I be sure of a "standard" product?*

A. You can. Roche vitamin A is manufactured under strict laboratory control. It is more stable. It is uniform. The regular commercial types of Roche material, if diluted to 50,000 to 65,000 units per gram, will meet the specifications of U.S.P. XIV for oleovitamin A. It is a product of excellent quality.

Q. *What about price?*

A. Roche vitamin A is not subject to wide fluctuation of price, as has been true with vitamin A from natural sources. This can mean large savings for you as there is no need to carry large inventories as was the case prior to the introduction of Roche vitamin A in 1950. Never before has the purchaser been assured of such low prices, consistent with quality and uniformity.

Q. *How is Roche vitamin A packed?*

A. All Roche vitamin A is packed under conditions which assure its stability in customary shipment and storage.

Q. *Can I get help from Roche in using vitamin A in my products?*

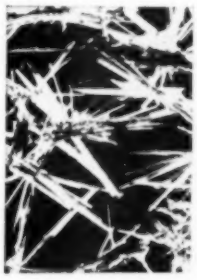
A. Certainly. The technical experts at Roche are ready at all times to help you. If you need samples, please send your requests to the Vitamin Division. For years many industries—canning, baking, milling, pharmaceutical manufacturing—have looked to Roche as their headquarters for information about, and supplies of, vitamins. It is important to you that Roche specializes in the manufacture of vitamins.

Q. *Is Roche vitamin A available in different types and potencies?*

A. It is. The following table shows the types most popular in pharmaceutical manufacturing.

TYPE	DESCRIPTION	POTENCY	ADDITIVE*
P1MO	Vitamin A palmitate	1,000,000 U.S.P. XIV units per gram	Edible oil *only* for standardization
P1.3	Vitamin A palmitate	Ranging between 1,250,000 and 1,500,000 U.S.P. XIV units per gram	None
A1MO	Vitamin A acetate	1,000,000 U.S.P. XIV units per gram	Edible oil *only* for standardization

*Antioxidants or other additives are included on customer's specifications.



Notes: Type P1MO has less tendency to crystallize during storage and handling than higher concentrations of vitamin A palmitate and acetate.

Type P1.3 is more susceptible to crystallization than type P1MO but can be handled without difficulty when using certain precautions.

Two other types of vitamin A palmitate and acetate are also available. They may be used for research and special production in which special handling can be provided. They are: Type P1.8 vitamin A palmitate—1,650,000 to 1,800,000 U.S.P. XIV units per gram and Type A2.9 vitamin A acetate—2,900,000 U.S.P. XIV units per gram.

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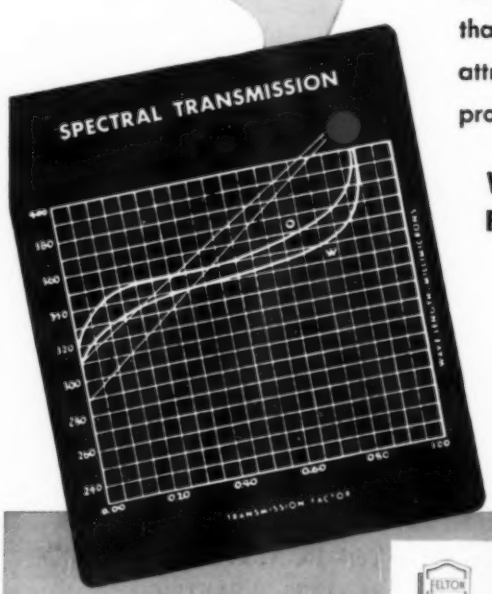

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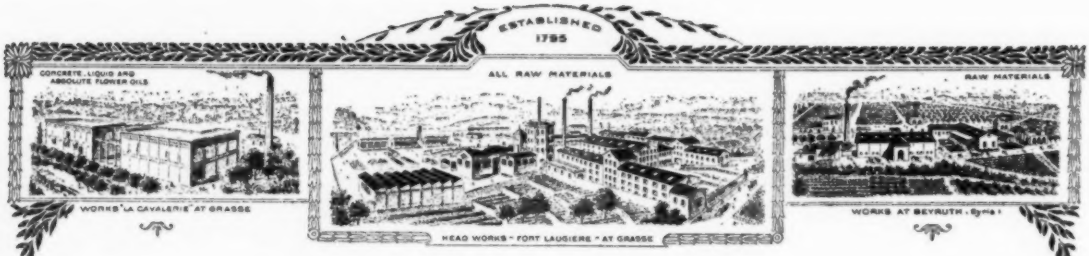

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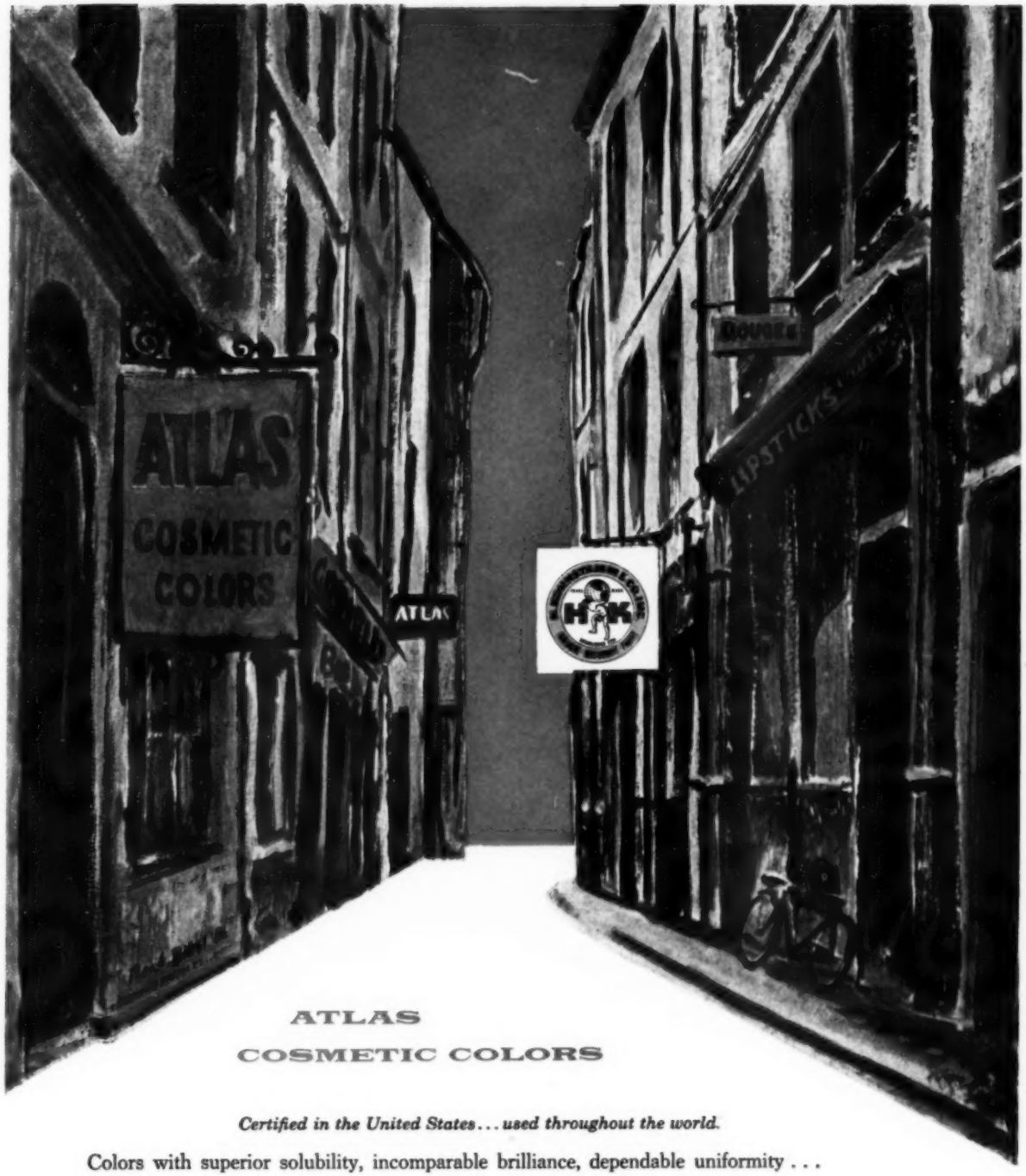

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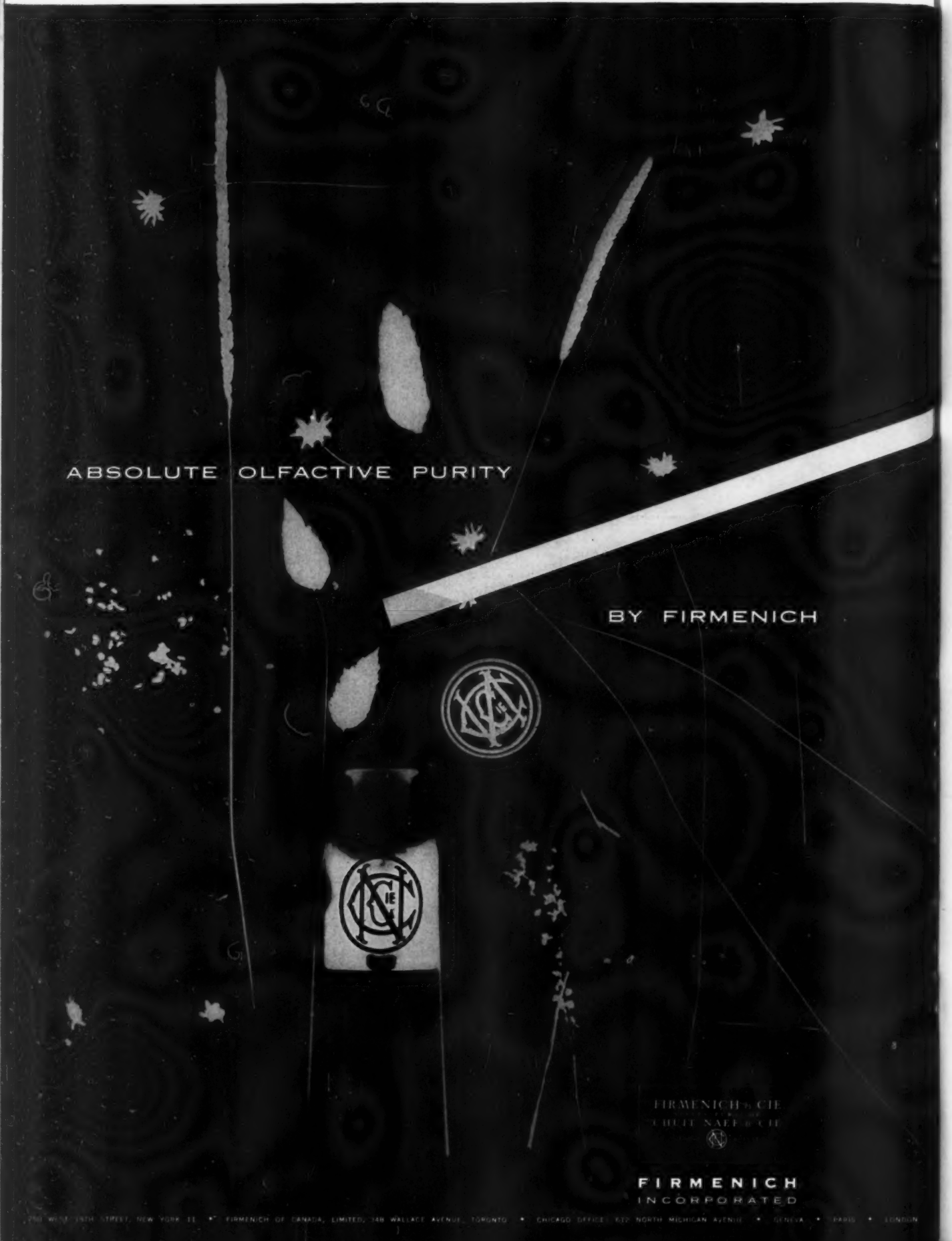

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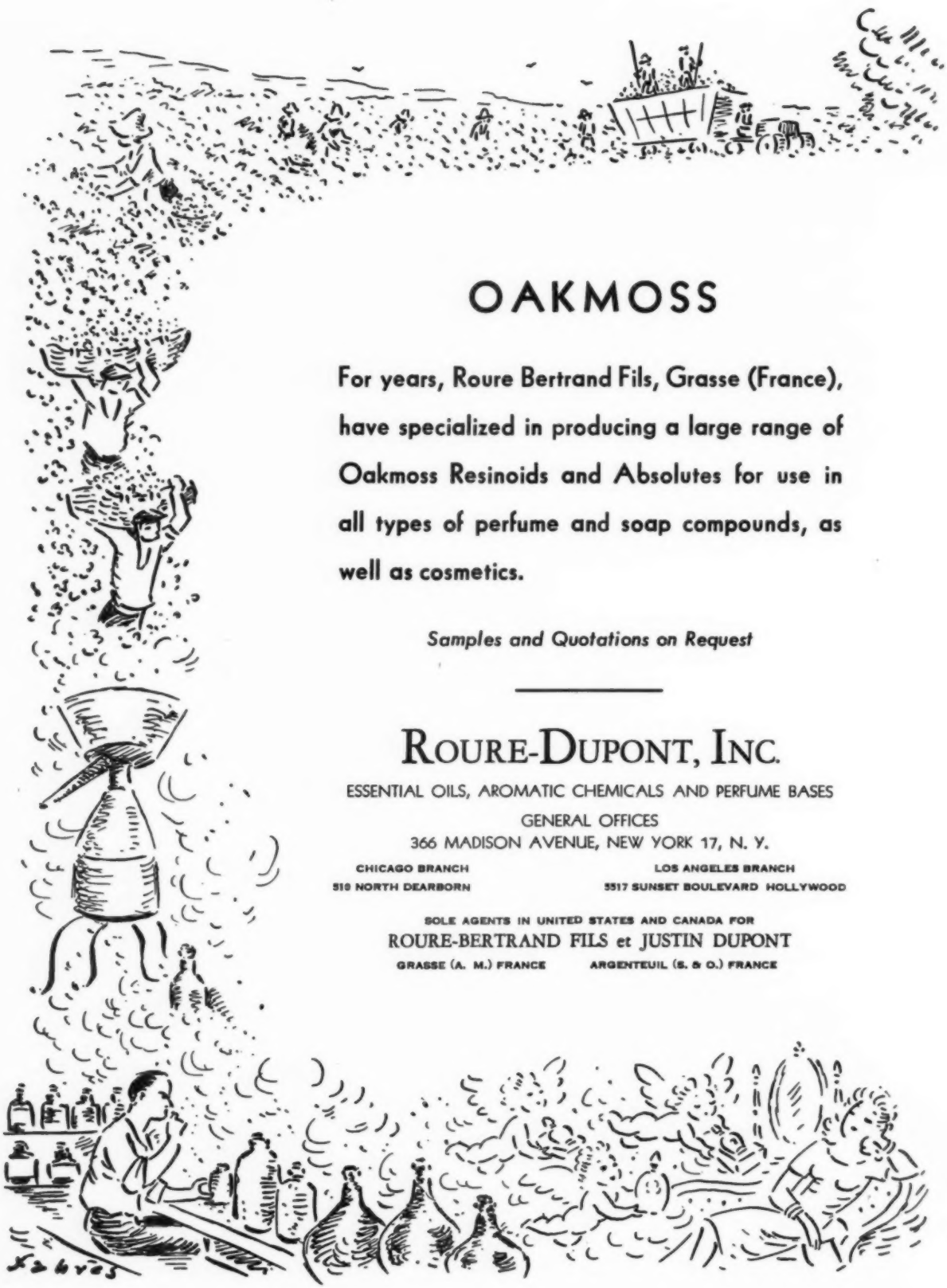

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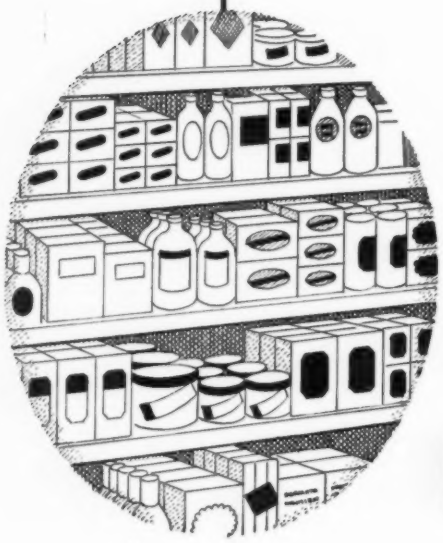

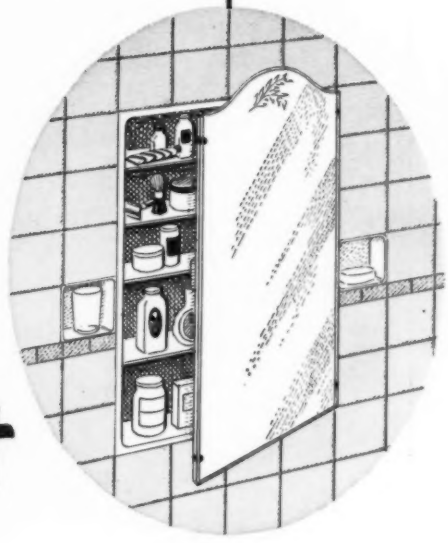

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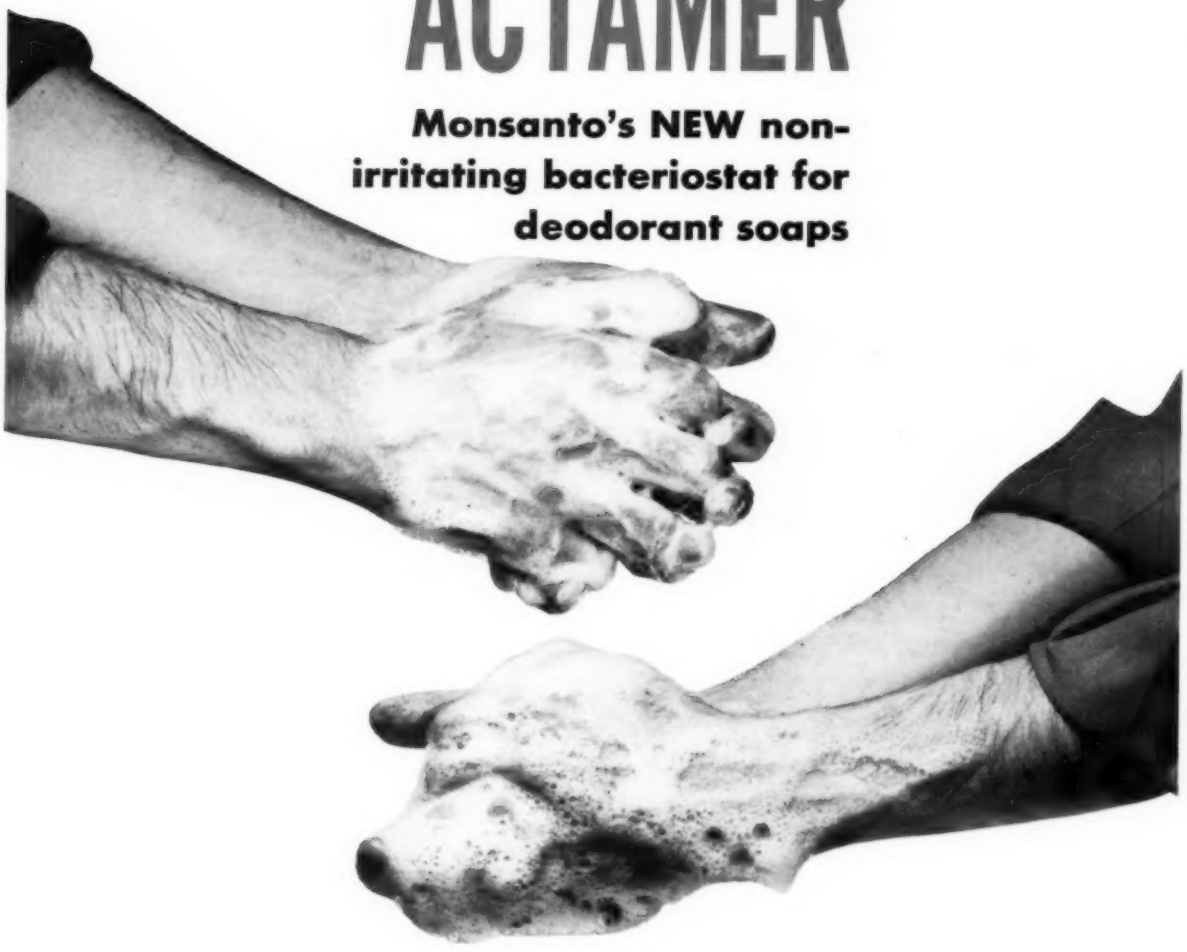


Hand-washing tests prove effectiveness
Resident skin bacteria reduced 97.5%

Proved by controlled hand-washing tests, ACTAMER materially reduces skin bacteria and shows great promise for use in deodorant soaps. Its basic properties indicate possibilities for application in such products as diaper rinses, laundry detergents, medicated facial tissues, shampoos, shaving creams, bath powders and sanitary napkins, and as an industrial preservative.

Secret of Actamer's effectiveness . . . the ability to be retained on the skin in minute amounts. Other important advantages:

Effective against gram-positive cocci. Extensive testing shows Actamer is extremely effective against these bacteria which often cause boils, carbuncles and other skin infections.

Exceptionally low toxicity for warm-blooded animals. Thus, Actamer may find possible applications in the pharmaceutical and veterinary fields.

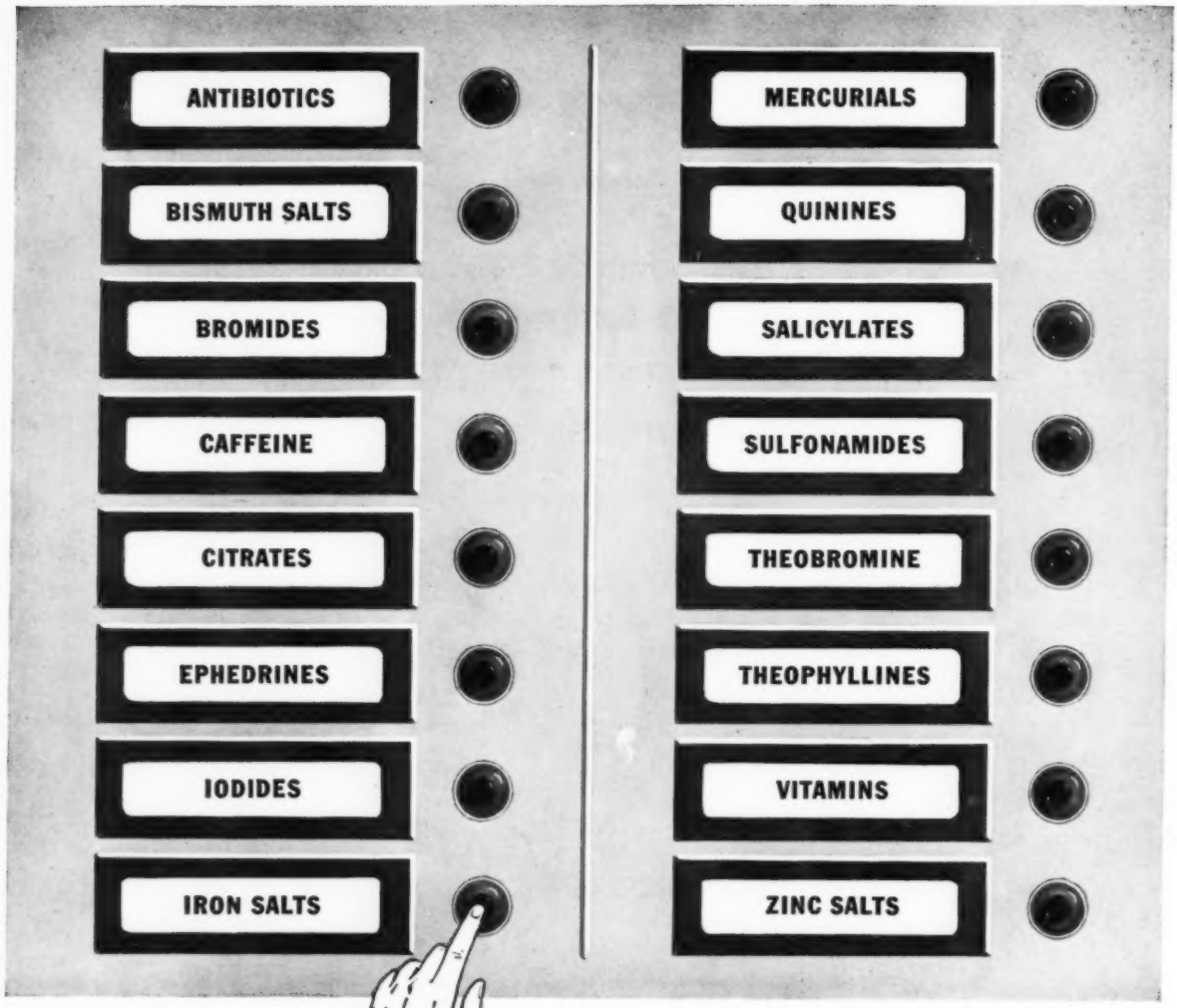
Economical. Write for a quotation. You'll be pleasantly surprised at the price.

For a technical bulletin on Actamer, or a sample, write to MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 800 North Twelfth Blvd., St. Louis 1, Missouri.

*Trade-mark

MONSANTO
CHEMICALS – PLASTICS

SERVING INDUSTRY...WHICH SERVES MANKIND



Why it pays to call on Merck

MERCK LEADERSHIP in the field of fine chemicals is built on the long-established confidence of Merck customers . . . on the trust of countless chemical users in the purity and uniformity of Merck products . . . on the know-how acquired through many years of pioneering experience in the manufacture of fine and medicinal chemicals.

IT PAYS TO CALL ON MERCK

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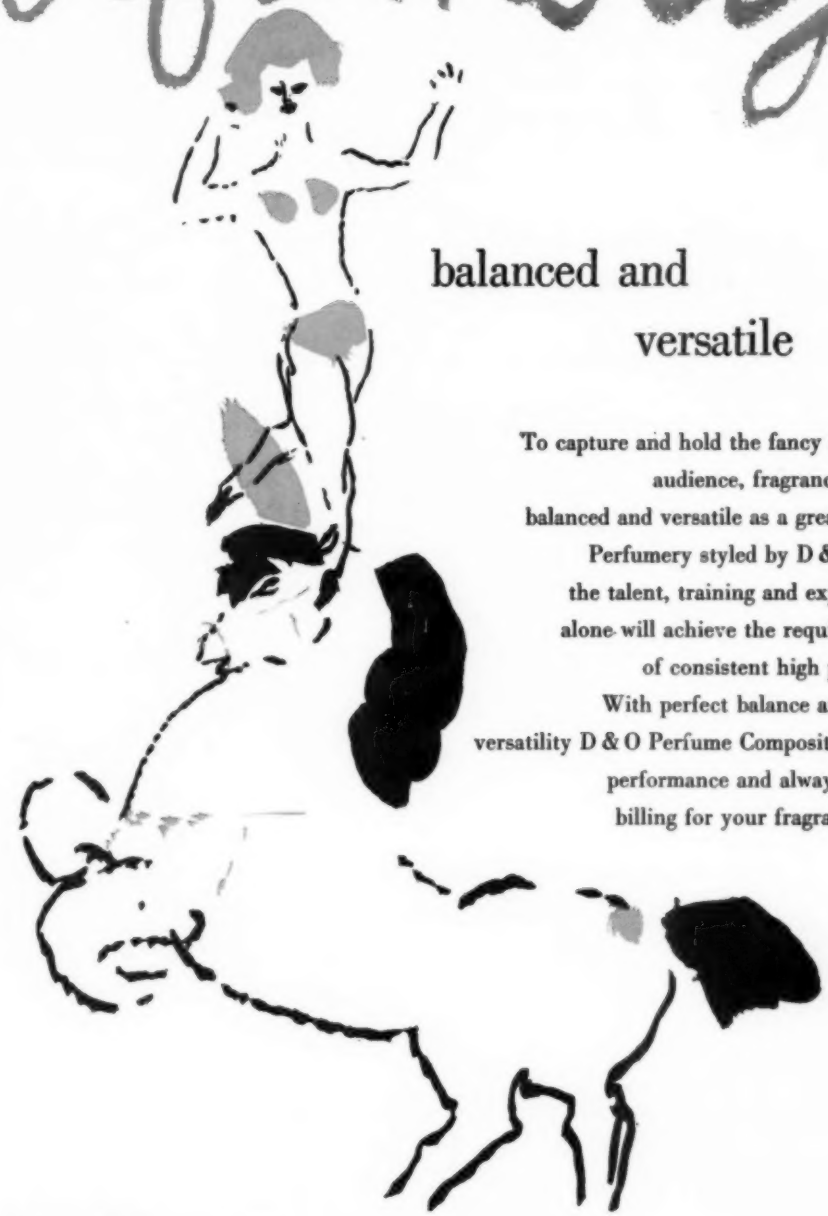
FINE CHEMICALS FOR THE PROFESSIONS AND INDUSTRY SINCE 1818

perfumery



balanced and versatile

To capture and hold the fancy of its myriad audience, fragrance must be as balanced and versatile as a great performer. Perfumery styled by D & O combines the talent, training and experience that alone will achieve the required standard of consistent high performance. With perfect balance and maximum versatility D & O Perfume Compositions give top performance and always secure star billing for your fragrance product.

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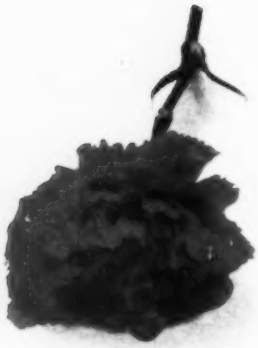

LINGERIE: JOHN NORMAN PHOTOGRAPH: MARK SHAW

for the successful perfuming of cosmetics

With its wealth of fragrance materials and experience to draw upon ... its expert knowledge of chemistry and perfumery ... Givaudan is ideally equipped to answer your perfuming problems. Our laboratories are at your disposal to create distinctive fragrances for you, designed to blend harmoniously with the ingredients of your product.

Givaudan laboratory facilities are available to create custom-built fragrances for:

Powders **Lipsticks** **Creams and Lotions**
Sachets **Bath Oils** **Bath Salts** **Suntans**
Liquid Make-Ups **Hair Oils and Tonics** **Shaving Creams**
Men's Colognes **Deodorant and Solid Colognes** **After-Shave Lotions**
Permanent-Waving Solutions **Toilet Soaps** **Shampoos**

Following are a few outstanding specialties, grouped according to most prominent use:

Individual Florals
Fleurs d'Oranger 1401
Gardenia 9058 Bis
Jacinthe Fleurs
Jasmonis
Lilas Fleurs VII
Muguet Fleurs 16
Rose d'Orient
Violet 1200

Classical Bases
Cassie Synthetic
Chypre 668
Fougere 1285
Iris Synthetic
Lavande Fleurs 34
Mousse de Chene 30
Neroli S.F.
Opoponax L.G.

Floral Bouquets
Amarante
Anthuria
Aronia
Base 35
Cetonia
Champacol
Daphne
Malia

Toners and Nuancers
Aldehydine L.G.
Alismone
Cetone Alpha
Cetone V
Irone Alpha
Iso-Jasmone L.G.
Philaria
Sycomore

Heavier Notes and Orientals
Ambre 1600
Brisia
Ebenol
Lycopsis
Melittis
Ormenis
Parana
Sophora

Fixatives
Abyssinis
Ambrettolide L.G.
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Pathways to originality in perfume

specialties by Givaudan

Creations that arise from the perfumer's artistry and the chemist's skill, specialties by Givaudan are the master key to the kingdom of perfumery. Lilas Fleurs VII, Sophora, Muguet Fleurs 16, and Melittis are a few of Givaudan's many specialties which have won world fame. Designed to give the perfumer new tools to work with, our specialties are original creations; some, similar to fragrances found in nature, may be used to replace natural oils; others will serve to enhance the fixative, floral, or diffusive properties of a perfume composition. Whether utilized as a point of departure or as finished composition, the Givaudan specialties merit the attention of the discriminating perfumer.

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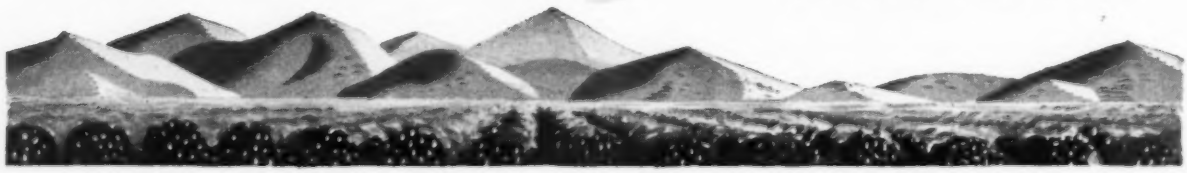
SUNKIST GROWERS
PRODUCTS DEPARTMENT • ONTARIO, CALIFORNIA

PRODUCING PLANT:
The Exchange Orange Products Co., Ontario, Calif.



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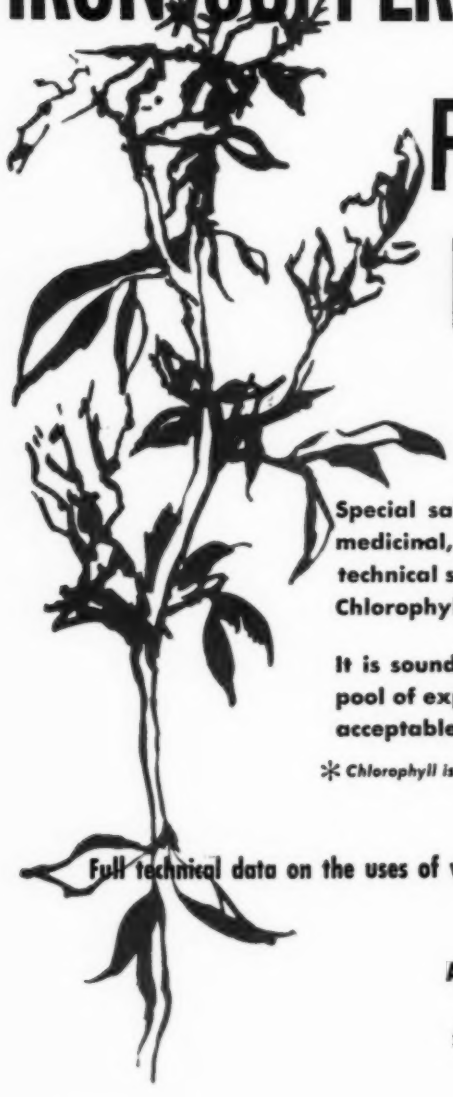

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YOUR ASSOCIATION'S ACCOMPLISHMENTS *in the* LEGISLATIVE FIELD

CERTAIN INDUSTRIES have always been prime targets for reformers and for crack-pot legislative proposals. Probably with less reason than in the case of almost any other industry, that devoted to the manufacture and sale of cosmetics, and toilet preparations comes in each year for more attempts to curb it, reform it, even to destroy it, than do most other businesses.

HOW THEN DOES it happen that the industry is operating without a variety of hampering restrictions, and that the laws governing its operations are in very large measure helpful and constructive rather than damaging and destructive to its continued progress? Your industry association, the T.G.A., is the reason!

OUR POLICY has been and will continue to be to lend our support to constructive legislative proposals, national, state and local, and to oppose with the utmost vigor ill-considered and unduly burdensome and restrictive measures whenever they may appear and no matter where they originate. By that policy we have through the years protected the industry, the trade and—what is more important—our great and ever-growing multitude of consumers from a flood of bad legislation.

DURING the last ten years not a single piece of unduly restrictive legislation has been passed by Congress, the forty-eight State legislatures, or any important Municipal legislature. This extremely favorable result in the face of the introduction of literally hundreds of bad bills was not attained by accident.

YOUR ASSOCIATION, in addition to experienced general counsel in New York, is represented by excellent attorneys in Washington and on the Pacific coast, and when necessary, employs eminent local counsel in the jurisdictions where bad bills are introduced. Its legislative committee has at least one member in each state, anxious and able to assist in the handling of local legislative matters. This efficient team is directed from Association headquarters so that results are obtained for the entire industry economically and effectively.

THUS the T.G.A. has quietly and effectively fought the legislative battles of every member of the industry through the years. It is proud and happy to stand on an almost perfect record of legislative accomplishments.

THE TOILET GOODS ASSOCIATION, INC.
9 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

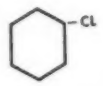
Further advertisements in this series will present to the industry what we feel will be an interesting picture of your Association's activities. Please read them and get to know us better.

Hooker Chemical Guide
(ONE OF A SERIES)

USE this handy reference to save time in selecting high-quality chemicals.

HOOKER SOLVENTS

MONOCHLOROBENZENE



Synonym: Phenyl Chloride
Formula: C_6H_5Cl
Molecular Weight: 112.5
Appearance: Clear, colorless liquid

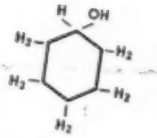
TYPICAL PROPERTIES

Freezing Point	−44° C
Distillation Range	131.2° to 132.2° C
Specific Gravity, 15.5°/15.5° C	1.114

USES

INSECTICIDAL INTERMEDIATE: DDT and other insecticides.
DYESTUFF INTERMEDIATE: Sulfur black and brown dyes.
CHEMICAL INTERMEDIATE: Organic synthesis.
SOLVENT: Paints, varnishes, lacquers, paint removers; general use.
HEAT TRANSFER FLUID: Suggested for condensing vapor systems, such as glass-enameled vessel jackets, which cannot stand high steam pressures.

CYCLOHEXANOL



Synonym: Hexahydrophenol
Formula: $C_6H_{11}OH$
Molecular Weight: 100.1
Appearance: Viscous, colorless liquid with pleasant, aromatic odor.

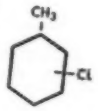
TYPICAL PROPERTIES

	High Grade	Tech. Grade
Freezing Range	18° to 22° C	−10° C to −20° C
Boiling Point	161.7° C	161.7° C
Specific Gravity, 25°/15.5° C	0.945	0.939
Flash Point	67° C	61° C

USES

SOLVENT: For resins, metallic soaps, dyes, fats and oils.
BLENDING AND STABILIZING AGENT: In textile soaps and dry cleaning agents.
HOMOGENIZING AGENT: For lacquers, varnishes and paints.
ALSO USED: In furniture and metal polishes, shoe creams, floor waxes, degreasing of leather, lubricating oils, also a plasticizer and ingredient of adhesives, and as a chemical intermediate in organic synthesis.

MONOCHLOROTOLUENE



Synonym: Methylchlorobenzene
Formula: $CH_3C_6H_4Cl$
Molecular Weight: 126.5
Appearance: Clear, colorless to straw-colored liquid.

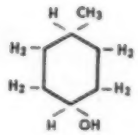
TYPICAL PROPERTIES

Freezing Point	below −45° C
Distillation Range	158.3° to 161.7° C
Specific Gravity, 15.5°/15.5° C	1.080

USES

SOLVENT: Rubber and synthetic resins.
INTERMEDIATE: Manufacture of rubber accelerators, chemicals.

METHYL CYCLOHEXANOL



Synonym: Hexahydrocresol
Formula: $CH_3C_6H_{10}OH$
Molecular Weight: 114.1
Appearance: Light straw-colored, neutral, viscous liquid.

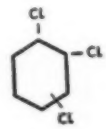
TYPICAL PROPERTIES

Distillation Range	155° to 180° C
Specific Gravity, 15.5°/15.5° C	0.924
Flash and Fire Points	71° C

USES

SOLVENT: For cellulose acetate, nitrocellulose and other cellulose esters for lacquers and coating compositions.
ANTI-OXIDANT: In lubricants.
BLENDING AGENT: For special textile soaps and detergents.

TRICHLOROBENZENE, Tech.



Formula: $C_6H_3Cl_3$
Molecular Weight: 181.5
Appearance: Clear, almost colorless liquid

TYPICAL PROPERTIES

Freezing Point	10° C
Distillation Range	5° incl. 216° C
Specific Gravity, 15.5°/15.5° C	1.466

USES

INSECTICIDE: Soil poison for termites.
SOLVENT: Fats, oils, waxes, resins; crystallization solvent.
HEAT TRANSFER MEDIUM: Condensing vapor systems, 210° to 300° C.
DIELECTRIC FLUID: Transformers.
INTERMEDIATE: Dye intermediates, other organic chemicals.

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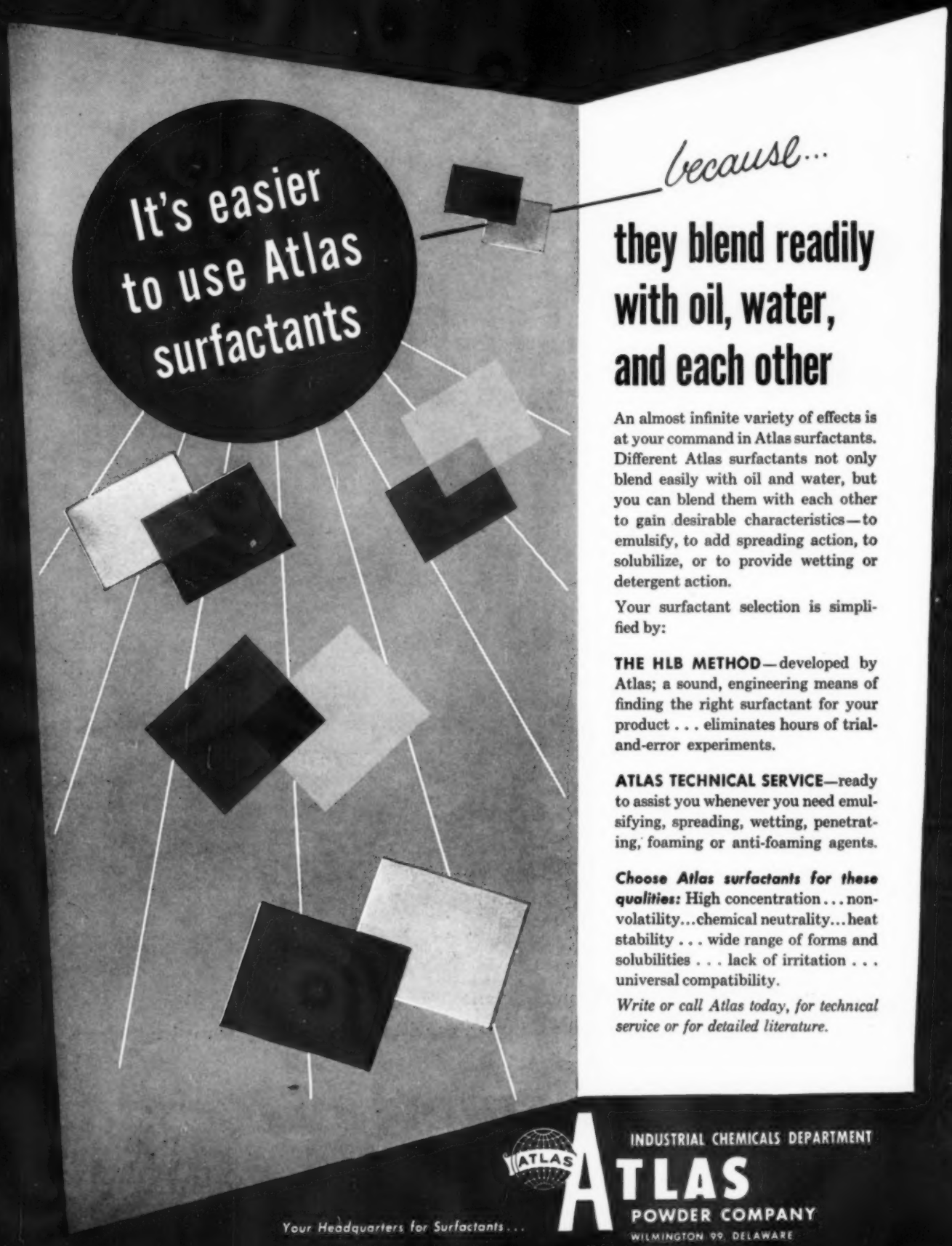

because...

they blend readily with oil, water, and each other

An almost infinite variety of effects is at your command in Atlas surfactants. Different Atlas surfactants not only blend easily with oil and water, but you can blend them with each other to gain desirable characteristics—to emulsify, to add spreading action, to solubilize, or to provide wetting or detergent action.

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THE HLB METHOD—developed by Atlas; a sound, engineering means of finding the right surfactant for your product . . . eliminates hours of trial-and-error experiments.

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You'll find it's a good rule to follow . . .
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The New York Quinine & Chemical Works, Inc.

General Offices

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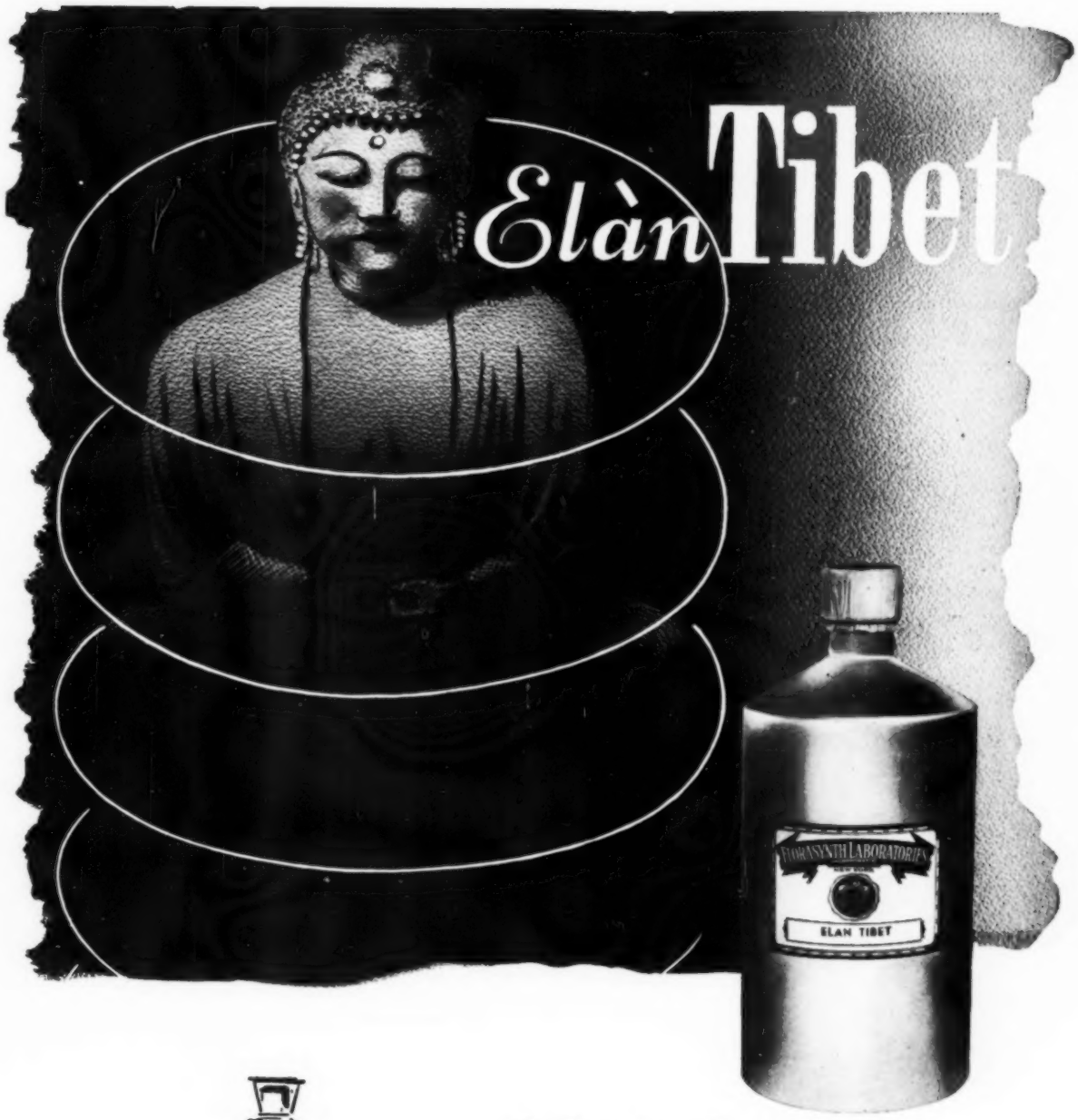

Floral creation of unusual intriguing odor...suggestive of the subtle charm and mystery of the native background with an appealing character that lends delicate bouquet to toilet waters and perfumes.

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BENZYL CHLORIDES

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PARA-CHLOROBENZYL CHLORIDE
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The uses of Benzyl Chloride in the manufacture of many products —such as quaternary ammonium compounds, dyes, pharmaceuticals, perfumes, plasticizers and resins—are well known. The chlorinated derivatives of benzyl chloride are advantageous starting materials for analogs well worth investigating further.

You probably are already aware of the fact that Heyden has had long experience in producing a wide variety of chlorinated derivatives of toluene and other aromatics. Among these are chlorotoluenes, chlorobenzaldehydes, chlorobenzoic acids, chlorobenzoyl chlorides, and chlorobenzotrichlorides. Our sales and technical staffs will be glad to discuss those of particular interest to you.

HEYDEN CHEMICAL CORPORATION

342 Madison Avenue, New York 17, N. Y.

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FINE HEYDEN CHEMICALS

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faith
deserves
the
best

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2 *These retailers are nearly all (86%) located in the 168 metropolitan markets which do 75.27% of all apparel sales and over 85% of the perfume and cosmetic sales of selected cosmetic distribution.*

3 *The key to selling in these stores is the girl behind the counter. Beauty Fashion's club subscription, editorial policy, school training program and personal contacts have, over 35 years, made these girls an intimate part of Beauty Fashion's readers.*

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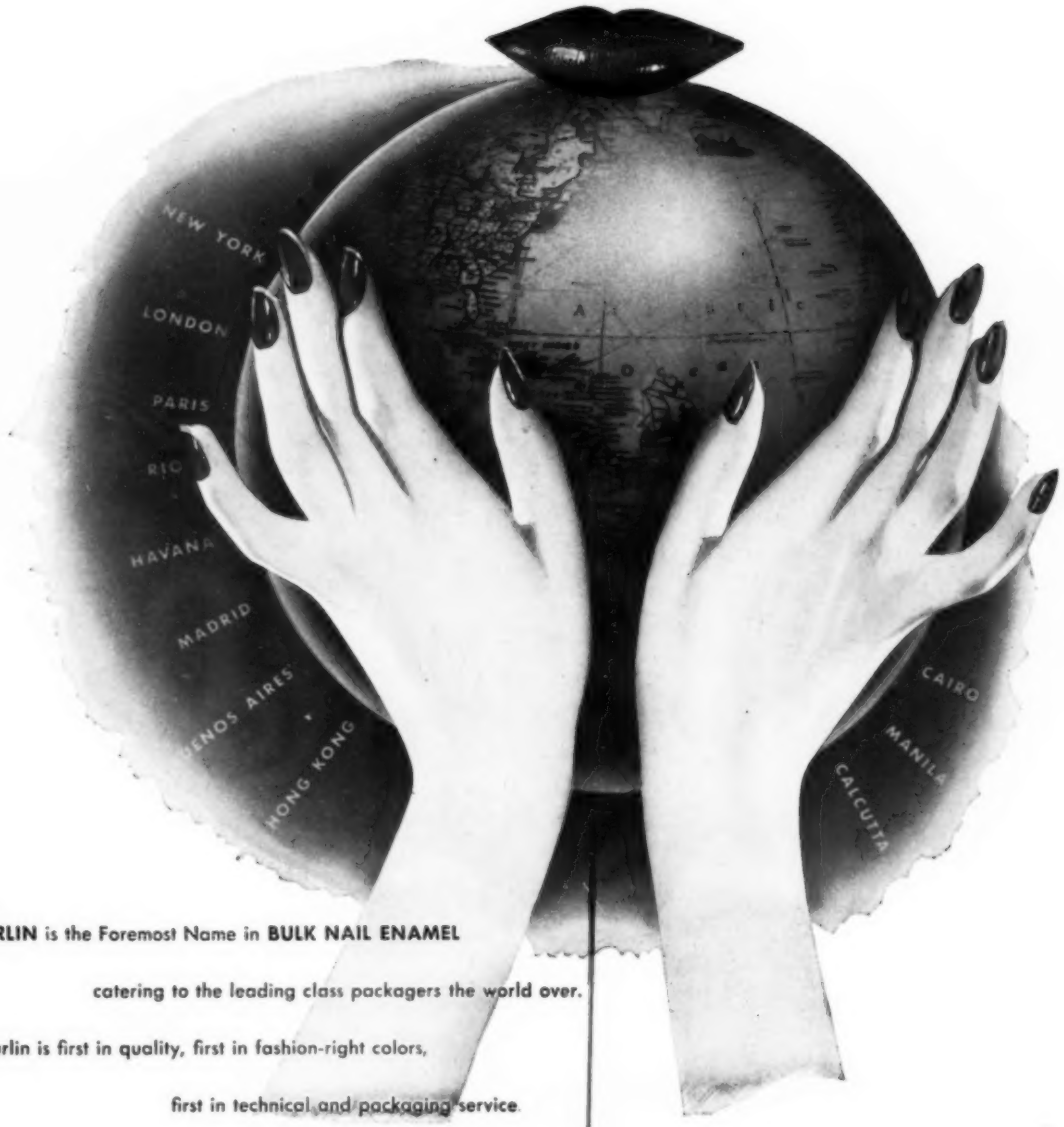
Phone: LOngacre 3-3177

Glamorous Hands Around the World...



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catering to the leading class packagers the world over.

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glamorous hands *around the world...*

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facts you may want to know about—

Potassium Bicarbonate

Foremost producer

Mallinckrodt began the manufacture of potassium bicarbonate in 1940. Prior to that time there had been no significant domestic production and pharmaceutical manufacturers were dependent on imports for their supplies of this important alkali. Mallinckrodt is now believed to be the major manufacturer of medicinal grades.

Capacity to supply national needs

Modern facilities, processing methods utilizing domestic raw materials, and adequate capacity have enabled Mallinckrodt to supply the nation's entire requirements for fine chemical grades of potassium bicarbonate.

Outstanding purity

In a line of fine chemicals for the pharmaceutical industry where exceptional purity is the rule, Mallinckrodt potassium bicarbonate is outstanding in chemical purity, uniformity and freedom from foreign matter.

Mallinckrodt potassium bicarbonate fully meets the requirements of the U.S.P. and is supplied in two forms:

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Potassium Bicarbonate USP XIV Powdered (100% through 60 mesh sieve, not less than 95% through 80 mesh sieve)

Forms Available

Special forms can be produced to meet unusual requirements of quantity buyers. Mallinckrodt Potassium Bicarbonate USP XIV is supplied in 250 lb. leverpak drums, 100 lb. and 25 lb. fibre drums as well as subdivisional size containers.

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MANUFACTURERS OF FINE CHEMICALS FOR THE PHARMACEUTICAL INDUSTRY • SINCE 1867 •

"He's trying to sell the idea of winter weight cosmetic stockings."

Much Chlorophyll Activity

Chlorophyll came in for much real attention last month. Among the outstanding events affecting chlorophyll's future in this industry were: (1) An announcement by the Federal Trade Commission that it was planning to call a chlorophyll industry conference; (2) A very upsetting address (later clarified) by Dr. A. H. Corwin, head of Johns Hopkins University chemistry department, before the New York Section of the American Chemical Society; and (3) The formation of a Chlorophyll Industry Committee to codify standards in processing and application, encourage research, and disseminate information about chlorophyll.

As to the first mentioned event, the bureau of industry cooperation of the Federal Trade Commission says that it plans to explore the advisability of holding a trade practices conference in the near future covering the advertising claims made for chlorophyll and products containing chlorophyll. The Commission said that it believes such a step is in the public interest at this time because of the many and all-inclusive advertising claims made in newspapers and other media, and because of the alleged conflicting statements made by the experts quoted in such advertisements. These conferences will explore and develop all available data, scientific and otherwise, with the view of taking such action in the public interest as may be appropriate under the laws administered by the Commission, according to the announcement.

As to the address given by Dr. Corwin, the impression given by reports in the daily press was to the effect that the copper present in the copper derivatives was harmful to the liver, and that the samples examined contained excess chlorophyll above that which was in chemical combination. Great consternation followed this address and the press reports of it. Those present who were interested in chlorophyll were most outspoken in their criticism of Dr. Corwin's statements. The address, which was given on December 5, was followed on December 16 by the following clarification by Dr. Corwin:

"As the result of a technical report presented by me before the New York Section of the American Chemical Society on December 5, 1952, on the subject of chlorophyll, certain misconceptions have arisen which I wish to correct.

"I did not state that chlorophyll is toxic. Such a statement would be at variance with the experience of the human race over thousands of years.

"Neither did I state that the commercial products containing copper or other metal derivatives of chlorophyll now on the market are toxic. I know of no experimental evidence which would provide a basis for a statement that these chlorophyll derivatives are unsafe.

"While acknowledging the existence of numerous published scientific reports on the effectiveness of chlorophyll for healing and deodorization, the point I made was that, in my opinion, many phases of the use of chlorophyll need further statistically controlled investigation."

The formal establishment of a Chlorophyll Industry Committee follows several months of conferences by leading figures associated with chlorophyll. It is stated that the committee will intensify and enlarge projects already undertaken by individual members of the industry. Among the active participants in the formation of the group were: M. M. Rickets, American Chlorophyll Division, Strong, Cobb & Company; Walter H. Kenlan, National Chlorophyll & Chemical Company; Donald G. Carpenter, Chlorophyll Division, Archer-Daniels-Midland Company. Other producers are represented in the committee, and plans call for the participation of leading users of chlorophyll.

FTC Complaint Against Rybutol

Rybutol advertising claims regarding its effectiveness on advancing age are the subject of a Federal Trade Commission against VCA laboratories and Vitamin Corporation of America, Newark, N. J.

The complaint charges that the following claims are misleading and deceptive in material respects: That Rybutol is a competent and effective treatment for the symptoms of old age and the feeling of advancing age, including aches, pains, nervousness, fatigue and loss of energy, backache, digestive disturbances, poor appetites, insomnia and similar disorders; that Rybutol helps to delay or prevent the symptoms of advancing age by

restoring vitality, strength and energy; that it helps a person to regain youthful feeling; that the diets of persons over 35 years of age are deficient in certain vitamins of the B complex; that the human body *cannot* store certain factors of the B complex longer than a few hours and it is necessary to take or consume those factors supplied by Rybutol daily in order to prevent deficiencies; that Rybutol supplies a therapeutic dose of vitamin B_{12} when taken as directed.

Sunway Vitamin Claims Stopped

Modification of an order issued by the Federal Trade Commission against advertising claims of Sunway Vitamin Capsules, of Sunway Vitamin Company, Chicago, has resulted in the following prohibitions:
That the preparation will relieve low resistance to disease, coughs, colds; that it will relieve nervousness, lack of energy, restless sleep, indigestion, aches and pains, loss of appetite, unhealthy skin and hair, dizzy spells and general poor health, due to any cause other than a deficiency of vitamin B_1, vitamin B_2, or niacinamide; that the preparation when used as prescribed will be of any value for conditions due to a deficiency of vitamin B_2 or niacinamide other than tending to relieve those conditions caused by a mild deficiency, if taken regularly over a long period of time; that it is effective in relieving or substantially improving any condition, symptom or disorder arising from a substantial deficiency other than vitamin B_1; that it contains all vitamins beneficial in promoting or maintaining good health in individuals; that individuals generally require a fresh supply of vitamins daily in addition to those obtained from properly selected foods appropriately cooked; that vitamin B_6 (pyriodoxin) is essential to nutrition or promotes restful sleep that pantothentic acid is appropriately referred to as the acid of life; that 45 million Americans suffer perpetually from vitamin deficiencies; that vitamin Bf is appropriately referred to as the beauty vitamin; that the preparation is effective in minimizing the physical conditions resulting from over indulgence in alcoholic beverages.

Madam C. J. Walker Hair Claims Banned

In an initial decision of a Federal Trade Commission Hearing Examiner, Mme. C. J. Walker Manufacturing Co., Indianapolis, is ordered to discontinue advertisements that Madam C. J. Walker's Wonderful Hair and Scalp Preparation, Madam C. J. Walker's Wonderful Scalp Ointment (also known as Double-Strength Scalp Ointment and Tetter Salve), and Madam C. J. Walker's Wonderful Temple Salve, which represent:

That any of the preparations will improve the health of the scalp or be of therapeutic value in relieving the condition of short, thin or brittle hair, or prevent hair from falling; is a competent or effective treatment for dandruff or tetter, or is of any value in treatment of dandruff, tetter, or itching scalp in excess of temporarily relieving the itching or dissolving loose dandruff flakes so that they may be removed; that use accompanied by massage of the temple area will stop hair from falling out and make the hair soft and silky with long-lasting texture and lustre.

Cosmetic Chemist Employment

Establishment of an employment service for cosmetic chemists, in the new permanent headquarters of the Society of Cosmetic Chemists located at the New York Academy of Sciences, was recently announced. The purpose of the service, which is available, without charge, to both members and non-members, is to help recent graduates as well as experienced cosmetic chemists obtain positions in the industry, and to assist employers in finding qualified men.
Cornelia van der Linde, formerly associated with Executive Job Counselers, Inc., will administer the employment service. Those wishing to register or to discuss employment problems may write Miss van der Linde or telephone her for an appointment at the Academy of Sciences, 2 East 63 St., New York.

Frommes and Mueller Hair Claims

The Frommes Method, Inc., Minneapolis, its officers, and Sidney J. Mueller, trading as Mueller Hair Experts, Houston, have signed consent settlements with the Federal Trade Commission under which they agree to eliminate from advertising representations that use of their preparations, methods and treatment will prevent baldness and renew growth of hair. Also to be discontinued are representations that the Frommes Method will:
Cause fuzz on scalp to develop into normal hair; permanently eliminate dandruff, falling hair, dry, itchy, or irritating scalp, brittle hair or oily hair or scalp; Normalize the blood circulation in the scalp or revitalize or have any effect upon any hair growing activity of the scalp; destroy sub-scalp bacteria; prevent or cure psoriasis; provide an effective treatment for all kinds of scalp disorders; sterilize the scalp or normalize the acidity of the scalp.

Mueller Hair Experts also agreed to discontinue representing that their treatment will:

Cause hair to grow thicker in thin spots; cause fuzz to be replaced by normal hair; cause the hair growing functions to the scalp to be rejuvenated; kill bacteria beneath the scalp; cause the scalp to be energized to grow new hair; cause the permanent elimination of dandruff, itching, dryness or oiliness of the scalp; cure all scalp disorders, keep the hair healthy or enable an individual to maintain a thick head of hair.

Since the U. S. Supreme Court has now upheld the decision of the Circuit Court in ruling that under the Federal Food, Drug, and Cosmetic Act, the permission of the owner of a plant is necessary before the FDA can inspect it, amendment of the law is sought by the FDA. As a result of the court decision, the inspection provisions of the law are invalid. Manufacturers in this industry are well aware that plant inspection is an integral part of this law and a most important factor in proper enforcement of the law. Therefore they are perfectly willing to support an amendment to restore full authority for plant inspection to the FDA.

At first, the manufacturers thought that the FDA would attempt to include in this amendment an extension of its inspection powers. This extension would extend to such things as the complaint file, complete formulation, and research records. However, it appears

that the FDA either reads the election returns, or shies away from another knock down and drag out fight such as the recent one over the Durham-Humphrey Amendment. Therefore, the FDA has proposed, and the American Drug Manufacturers Association, the American Pharmaceutical Manufacturers Association, and the Toilet Goods Association have agreed to support the simple amendment proposed by the FDA. This amendment simply amends Section 704 of the Food, Drug, and Cosmetic Act by substituting the phrase, "after first giving written notice to the owner, operator, or custodian thereof," for the present language, "after first making request and obtaining permission of the owner, operator, or custodian thereof."

FTC To Call Chlorophyll Conference

The Federal Trade Commission has directed its Bureau of Industry Cooperation to conduct conferences on the advertising claims made for chlorophyll and products containing chlorophyll. The FTC states that it believes it to be in the public interest at this time to hold such conferences because (1) of the many and all-inclusive advertising claims made in various newspapers and other media, and (2) the conflicting statements made by the experts quoted in such advertising.

These conferences, says the Commission, will explore and develop all available data, scientific and otherwise, with the view of taking such action in the public interest as may be appropriate under the laws administered by the Commission.

Art Awards to SKF

Smith, Kline & French Laboratories' Art Department won two Gold Medal awards and three Blue Seal awards at the 18th annual exhibit of the Art Directors Club of Philadelphia last month. One Gold Medal award was won by Warren Blair, art director of SKF for a trade paper advertisement on Dexedrine in black and white, featuring the art work of H. Robert Lesnick. The second Gold Medal award was given William H. Oakley Jr., art director of SKF Foreign Division, for a color trade paper advertisement on Neuro Theranates, with art work by Ezio Martinelli.

Three Blue Seal awards also went to Mr. Blair. Two were for covers of the SKF magazine, Caduceus, with art work by William Schilling and Alexander Derkas of the SKF Art Department. The third Blue Seal award was for a trade magazine advertisement on Trophite executed by G. William Holland.

Warner-Chilcott Activity

The 125-man sales staff of William R. Warner and Chilcott Laboratories completed a four-week training conference to thoroughly acquaint them with the products of these two units of Warner-Hudnut, Inc., which are now merged into Warner-Chilcott Laboratories. Among the products which Warner-Chilcott is now marketing are Methium Chloride, a drug in oral dosage form for hypertension; Peritrate, for prophylactic treatment of angina pectoris; Proloid, a thyroid extract; Tedral, an anti-asthmatic; Gelusil, an antacid absorbent; Agarol, a laxative, Evans Blue, a diagnostic tool to determine blood volume and gauge blood replacement; Anusol, for rectal disorders; and a number of vitamin preparations.

"A great part of Warner-Chilcott sales will be concentrated in relatively few items," according to Edmund R. Beckwith Jr., sales manager of the division. "This means fast turnover and, in many cases, long-line extension for those who hold a Warner-Chilcott franchise. For the retail druggist, it means better service since our field organization will have considerably more depth than it had before. Much greater intensity in our work with physicians should show its natural result, in better business for both retail and wholesale druggists."

In discussing the outlook for 1953, Charles T. Silloway, vice-president in charge of Warner-Chilcott, said "this new pharmaceutical division is expected to do a $13,000,000 domestic business during the coming year, which is considerably more than the total sales of the two firms in 1952. At least a half-dozen Warner-Chilcott products will exceed the million-dollar sales mark, and a majority of these will be the most widely used in their respective fields."

Natcel Claims To Stop

Advertisements representing or implying that Natcel, a hair dye, is an amazing discovery, retards falling hair, cures conditions causing dandruff, and darkens hair below the skin, are discontinued under a stipulation signed by Laser Laboratories, Minneapolis, with the Federal Trade Commission. Also discontinued are, advertisements which fail clearly to disclose that Natcel is primarily a hair dye and that its use for any other purpose is only incidental.

FTC Bans Pruvo Claims

Advertising that Pruvo is a remarkable new medical discovery for rheumatism, arthritis, neuritis or arthritic or rheumatic conditions has been ordered discontinued in an FTC Hearing Examiner's initial decision issued against Pruvo Pharmacal Co., Milwaukee. Claims prohibited are that Provo will reduce swelling or free joints of stiffness for sufferers from arthritis, rheumatism, or neuritis, or will result in therapeutic benefits other than those afforded by an analgesic or antipyretic; that it will quickly and completely relieve all pains of arthritis, rheumatism, neuritis, or have any effect upon any of the symptoms in excess of temporary relief of minor aches, pains, or fever; that its use will enable persons afflicted with arthritis, rheumatism, or neuritis so severely as to interfere with their normal habits to resume those habits or usual occupations; that it is safe, or that it may be taken by practically anyone without stomach upset or other unfavorable reactions.

Dolcin To Appeal FTC Order

Dolcin Corporation is appealing to the Federal Court from a Cease and Desist Order issued against it by the Federal Trade Commission.

In upholding the decision of the hearing examiner, the Commission said the greater weight of the evidence

supports the decision of the hearing examiner that Dolcin *cannot* be depended upon to have any effect whatever upon the symptoms accompanying any arthritic or rheumatic condition. The Commission stated:

"The record also shows that respondents claimed in their advertising that Dolcin (1) is non-toxic, and (2) may be taken safely in large quantities over prolonged periods even by persons adversely affected by aspirin. The greater weight of the evidence shows that the aspirin in Dolcin has exactly the same effect as if taken alone and that certain persons are adversely affected by aspirin and should not take it in large quantities or over a prolonged period. Aspirin is one of the safest analgesics known and is widely prescribed by physicians in large dosages for temporary relief of pain and fever in arthritic and rheumatic conditions. Serious results from such excessive use are rare. However, less serious but undesirable effects such as headaches, nausea, vomiting will occur in persons unable to tolerate aspirin. Respondents' representations to the contrary are false and deceptive."

Advertising claims banned by the order include: That Dolcin is an adequate, effective or reliable treatment for rheumatic fever, fibrositis, nyositis, neuritis, sciatica, lumbago, bursitis, or any other kind of arthritic or rheumatic condition; that Dolcin will arrest the progress or correct the underlying causes of, or will cure those maladies or conditions; that Dolcin will afford any relief of severe aches, pains and discomforts arising from those maladies or conditions, or have any therapeutic effect upon any symptoms or manifestations of any such condition in excess of affording temporary relief of minor aches, pains, or fever; that Dolcin is an adequate, effective, or reliable treatment for so-called growing-pains in children; that Dolcin may be safely taken over prolonged periods of time; that Dolcin may be taken safely by persons adversely affected by aspirin; that Dolcin is economical, inexpensive, or of low cost, under the retail price, without prescription, of aspirin, the only active ingredient.

Magnuson Health Committee Reports

The President's Committee on Health Needs of the Nation, appointed by President Truman in December 1951, and headed by Dr. Paul B. Magnuson as chairman, delivered its report to President Truman last month. This report was Volume I in a series of five volumes covering the findings of the committee. Volume I covers the commission's principles, major findings, and recommendations. The other four volumes were to be in the printer's hands as soon as the commission concluded its work. These are: Volume II, America's Health Status, Needs and Resources; Volume III, a statistical appendix to Volume II; Volume IV, statements submitted by members of the panel on financing; and Volume V, excerpts from the regional hearings in Philadelphia, Dallas, Raleigh, N. C., Minneapolis, St. Louis, Detroit, Cleveland, and San Francisco. Health Publications, Inc., of Raleigh, N. C., a non-profit publisher of health education material will publish, as a public service, a one-volume condensation of all five volumes.

While the committee did not recommend compulsory health insurance as an answer to our health problem, it did recommend establishment of a cooperative federal-state program, operated partly through federal grants-in-aid, to distribute personal health services to needy persons; extension of existing prepaid medical insurance plans; use of federal funds to train medical personnel, build better medical schools and hospitals, and set up medical research; and reorganization of present health departments and facilities to make them more efficient. Furthermore, the committee would include all health activities under a Department of Health and Security, headed by someone possibly of cabinet rank. The committee estimated that these additional health facilities would cost the Federal Government about $1,016,000,000, broken down as follows: Training for health personnel, including modernization and expansion of physical facilities, scholarships and aid for operations, $100,000,000; hospital construction, $75,-000,000; local health service, including support of general operations, chronic disease, maternal and child health, and environmental health activities, $60,-000,000; medical research, $20,000,000; assistance in development of better organization of health services through regional coordination, $10,000,000; grant-in-aid to the states to assist in the provision of personal services—the states would match the money—$750,-000,000; other costs, including support of programs for industrial health and migratory workers as well as the Federal Health Commission, $1,000,000.

Although the committee did not recommend compulsory health insurance from the Federal Government, it declared that ways must be found to finance premium payments for everyone if prepayment was to answer the problem. The report saw this as possible if families of independent means rated health higher in the family budget, and if general funds were used for those on the public assistance rolls and Old-Age and Survivors Insurance funds for the beneficiaries of that program. This was taken by Dr. Louis H. Bauer, A.M.A. president, as an entering wedge in the setting up of Federal compulsory health insurance. He believes that this means that the committee does recommend national compulsory health insurance.

Dolcin Formula Now Exclusive

Dolcin Corporation opened the new year with an announcement under the date of January 5, 1953, that "the Dolcin formula is and will continue to be the only patent-covered, succinate-salicylate formula in the anti-rheumatic, anti-arthritic field." The reason for this notice is given as follows:

On January 22, 1952, the U. S. District Court for the Southern District of New York, upon the stipulation of Dolcin Corporation and Rhodes Pharmacal Co., entered a consent decree, which provided:

Rhodes Pharmacal Co. admits the validity of each of the claims of U. S. Letters Patent No. 2,471,394, owned by Dolcin Corporation.

Rhodes Pharmacal Co. agrees "not to make, use or sell any preparation included within the language of any claim of U. S. Letters Patent No. 2,471,394 and containing (a) any acetylsalicylic acid, salicylic acid, or metallic salt of either of them, or any other salicylate drug, which salt or drug is effective for the relief of

rheumatic fever or rheumatism or rheumatic arthritis, as defined in said patent, or any equivalent salicylic acid derivative, said ingredient (a) being accompanied in the preparation with (b) succinic acid, or a metallic salt thereof or other succinic acid substance, as defined in said patent, both of said (a) and (b) ingredients being only in physical admixture in the preparation."

Dolcin Corporation agreed to allow Rhodes Pharmacal Co. a reasonable time to conform with the foregoing provision of the decree and Rhodes agreed to notify Dolcin when this was done. Dolcin has received notice from Rhodes that the latter has changed the formulation of its Imdrin preparation and that the former Imdrin formula has been discontinued since September, 1952. Therefore, the Imdrin product no longer will contain the succinate-salicylate composition covered by the Dolcin patent.

See Decline of Surgery

An era in which preventive medicine will preclude the need of surgery in the treatment of disease was predicted last month by Dr. John H. Mullholland, chairman of the Department of Surgery at New York University, College of Medicine, in his address at dedication ceremonies for the Henry W. and Albert A. Berg Institute for Experimental Physiology, Surgery and Pathology. Dr. Albert A. Berg at his death in 1950 left $500,000 for the building and considerably more than $1,000,000 for maintenance of the Institute. Dr. Mullholland said that in his foresight Dr. Albert A. Berg had realized that operations "were admissions of failure" to prevent or otherwise treat duodenal ulcers. Dr. Berg was an ulcer specialist. Said Dr. Mullholland: "The future will inevitably bring more knowledge and eliminate the necessity for surgery and surgeons not only in cancer but in all other surgical diseases." He expressed the further hope that "Speedy transport of human bodies without maiming and killing them" and the elimination of war would be brought about to obviate the need for surgery.

Government Sues Soap Companies

The big three in the soap business, Colgate-Palmolive-Peet Company, Lever Brothers, and Procter & Gamble, as well as the Association of Soap & Glycerine Producers, have been named defendants in a suit brought by the Department of Justice, which suit charges restraint of trade in the soap industry. George A. Wrisley, executive vice-president of the Allen B. Wrisley Company of Chicago, and president of the Association of Soap & Glycerine Producers, notes that "the Government has investigated the Association twice; first in 1942 and recently in a Grand Jury Proceeding in Newark, N. J. Despite the subpoenaing of voluminous records including committee and board dockets and minutes, and the interrogation of subpoenaed witnesses, in neither case was there an indictment of the Association. In my close relationship with the Association and in my capacity as president of it, I believe that the statements in the complaint referring to the Association are unfounded and unfair."

Statements issued by E. H. Little, president of Colgate-Palmolive-Peet and Jervis J. Babb, president of Lever Brothers, both call attention to the competitive condition of the industry which results in low prices to the consumers. Said Mr. Babb:

"As every housewife knows, competition among companies in the soap and detergent business is extremely intense. Lever Brothers and every other company in the industry is continuously engaged in trying to improve its competitive position by giving the consumer better products, new products and greater values at the lowest possible prices.

"Prices of soaps and detergents have risen only half as much as the average of all consumer products since 1935-1939 period, despite sharp increases in many costs. Thanks to intensive competition, the housewife gets a bargain every time she buys a bar or package of soap or synthetic detergent, and she has an extraordinarily wide choice among different products and types of products."

Mr. Little said that "Constant efforts have been made to get the company's products to the housewife at the lowest possible cost. Five general price reductions have been made since January, 1951. One of the company's most popular toilet soaps is priced at the pre-war level and another brand is only slightly more than the price in January, 1942. These are outstanding examples of 'holding the line' at a time of increased costs for nearly everything else the housewife buys." He said further: "As a result of constant research to develop new products and further improve old products, the quality and utility of the company's products are greater than ever before. Today's washing products get clothes cleaner, whiter and brighter, and often with less effort, than similar products even as recently as five years ago."

Bobst Criticizes Ethical Marketing

Elmer H. Bobst, president of Warner-Hudnut, last month told the Pharmaceutical Advertising Club that "the pharmaceutical industry is devoting too much time and interest to gimmicks and color in giving doctors facts about our preparations."

"Our industry must develop a committee to control advertising and information to the medical profession for the purpose of curbing and eventually denouncing any claims that may militate against the interest of the doctor and the welfare of his patient," he added. The growth in the number of pharmaceutical specialties designed for the treatment of specific ailments has resulted in the assumption by the ethical drug industry of a "vastly increased measure of responsibility for the welfare of the medical patients," said Mr. Bobst. He pointed out that "85 per cent of all prescriptions dispensed today are specialties, whereas, 35 years ago, 80 per cent of prescriptions were compounded by pharmacists from standard base chemicals. All of this indicates that our industry should have its own 'Hippocratic oath.' We should not leave this grave responsibility solely in the hands of the Food & Drug Administration or the Federal Trade Commission. We should take care of our own house and see to it that its dignity is maintained."

The Substitution Problem

With the growth of the ethical branch of the drug industry and the decline of the proprietary branch, there has come to the fore a problem for which some kind of solution is being eagerly sought by all branches of the industry. This problem goes under the general name of "substitution," and has to do with the pharmacist dispensing on a prescription a make or brand of an ethical product other than the make or brand specified in the prescription. The seriousness of this problem today is clearly the result of the growth of the business done in prescriptions, since, generally speaking, drugs prescribed by doctors cannot be identified by the users, at least not so far as the manufacturer's identity is concerned.

Such a condition naturally brought about a situation in which the manufacturer of so-called ethical specialties, through their detail men persuading doctors to write on prescriptions either the brand name of their items or the names of their companies, or by attempting to carry identification through to the doctors and patients by means of distinctive colors or shapes, or by printing on tablets, for example, have attempted to see that their products are the ones with which prescriptions are filled.

The druggist, on the other hand, also is anxious to build up his business. And since the prescription department is really the heart of the pharmacy, he wants to make as much money out of it as he can, and furthermore he does not want to turn away customers because he does not have the product called for in a particular prescription.

While the word "substitution" as defined in the drug laws of the country is taken to mean the dispensing of a product which is basically something different than that which is called for, numerous druggists are willing to dispense a different make of the same thing on a prescription. They defend this practice largely with the argument that the products are the same thing and are not in truth "specialties." The argument generally presented by those who defend this practice by pharmacists is that a very large percentage of the products offered by manufacturers are merely duplications of the products of other manufacturers, often under individual trade-marks, and that the druggist cannot possibly stock them all. Therefore, the retail pharmacists are often justified in indulging in this sort of substitution, say these defenders.

The extent to which this duplication has extended was recently pointed out by a manufacturer. Speaking at the meeting of the American Pharmaceutical Manufacturers Association last month, Clarance M. Van Kirk, vice-president of E. R. Squibb & Sons, said that although the original work on isoniazid was done by two or three companies, there are now some 38 different makes of this product on the market. To which he asked the question: "Just how silly can he get?"

Naturally a druggist cannot be expected to stock

anywhere near 38 brands of one particular pharmaceutical item just to be able to fill an occasional prescription that might come in for one of them that is not ordinarily prescribed. However, manufacturers put trade-marks on everything, even though their products are identical with those of other manufacturers. The latest example of this sort of thing is the new antibiotic which was first brought out by Eli Lilly & Company, then by Abbott Laboratories, and this month by the Upjohn Company. This antibiotic, bearing the generic name, erythromycin, is a discovery which is restricted to these three companies and to them alone. However, Eli Lilly thought it was necessary to identify their brand with the trade-mark Ilotycin, and Abbott thought it was necessary to identify their brand with the trade-mark Erothrycin, while Upjohn alone is content to offer the product under its generic name, or as erythromycin—Upjohn.

Time was when the American Medical Association through its Council on Chemistry and Pharmacy frowned upon the application of trade-marks to other than exclusive products of manufacturers. Any attempt to apply trade-marks to products made by more than one manufacturer caused these products to be excluded from acceptance by the Council. But as part of the latter day cooperation between the AMA and pharmaceutical manufacturers, trade-marks were permitted on almost all manner of pharmaceuticals when Dr. Fishbein was in charge at the AMA.

Clearly there are two different classifications in this problem of substitution. One involves the druggist who substitutes on a prescription the product called for except that the product is not that of the manufacturer specified. This may be due to the fact that the druggist does not have the brand called for in stock, it may be due to the fact that the druggist is supplying another make of the same item because his cost on this make is sharply below his cost on the make called for, or it may be due to the fact that he is a stockholder in a local firm, a practice which was recently the subject of a New York State investigation and the resultant dissolution of several such manufacturers.

When this type of substitution is practiced there are instances in which the pharmacist is not very wrong, and instances where his ethics are at a very low ebb. Surely a doctor has a right to specify which make he wants and have it supplied to his patient. Many doctors often start off with a particular make of a new drug, generally the original one, and because they obtain excellent results in their cases, they stick to this particular make and want no other. If other makes are substituted in their prescriptions, these doctors feel that they cannot judge the drug properly. Other doctors like to prescribe the original product for the sole reason that they feel that this manufacturer is entitled to his support because they are responsible for the development of a new and very valuable therapeutic agent. Some of these doctors have very strong feelings regarding substitutions.

The other type of substitution involves the purchase by the pharmacist of products which are manufactured only for the purpose of substitution. These are products which are made in the same distinctive color and shape of popular prescription specialties. The manufacturers of these products sell their wares to retail druggists for the purpose of substitution. Naturally the prices of these products are far below the prices charged for the original products. In these cases the druggists have no defense although they blame the legitimate manufacturers for the fact that such imitations exist. They do not blame the substituting druggist who buys these products for the sole purpose of increased profit through illicit substitution, but they blame the manufacturers for allowing these manufacturers to be in business to tempt the druggists.

The eradication of such products by the original manufacturer is a costly process. Naturally the manufacturers do not wish to prosecute the druggists themselves. Such a step is not good for trade relations, and, if the manufacturer is not stopped, the practice still continues even though a number of druggists are prosecuted. In such cases manufacturers must take these manufacturers to court and prove that their aim is deception and an attempt to steal something from someone else. When these cases are properly prepared and tried, injunctions can be obtained against the manufacturers of these clear imitations.

The argument is held by the manufacturers that only in a very few instances are products of different manufacturers identical. In the case of tablets the excipients are different in identity or quantity, and in the case of liquid preparations the inactive materials are different in identity or quantity. Therefore, even though the active ingredients are the same and the indications are the same, the products cannot be held to be identical. For this reason, it is argued, the patient is not getting the product which the doctor prescribed.

There can be no question regarding the great responsibility of the manufacturers in this situation. The fact that the leading pharmaceutical houses immediately duplicate new preparations brought out by others is a basic cause for the existence of the problem. Naturally the pharmacist feels no qualms of conscience when he substitutes the product of the original manufacturer when the product of a duplicating manufacturer is specified. From this point on his conscience does not bother him when he uses the product of a leading manufacturer on all prescriptions for that particular item. From this point on it is only a step to buy and substitute on prescriptions the products of lesser known manufacturers whose only method of getting business is through the device of lower prices. After this he might be willing to listen to and buy the wares of manufacturers whose only business is the production of imitations of pharmaceuticals of distinctive shape and color.

As a defender of the retail branch of the industry recently expressed the problem:

"To me pharmaceutical imitation is just as much imitation as product imitation. When one pharma-

(Continued on page 114)

Left to right, Dr. Louis H. Bauer, president of the American Medical Association; Dr. Leonard A. Scheele, surgeon general of the U. S. Public Health Service, and winner of the 1952 Scientific Award of the American Pharmaceutical Manufacturers Association; Michael F. Charley, president, APMA; and Dr. Martin Lasersohn, executive vice-president, Winthrop Stearns, Inc.

A.P.M.A. Meeting

Setting a record for attendance, the American Pharmaceutical Manufacturers Association held its Mid-Winter meeting at the Waldorf-Astoria Hotel, New York, December 8, 9 and 10. The Scientific Award Dinner held on the evening of December 9, was attended by 620 members and guests. Michael Francis Charley, president of the Association opered all sessions.

Taking cognizance of the decision of the U. S. Supreme Court of December 9, in which the Court held that food, drug, and cosmetic plants could not be inspected by the Food and Drug Administration without permission of the owners of such plants, the Association adopted the following resolution:

Be It Resolved by the American Pharmaceutical Manufacturers Association, convened in midyear meeting on December 10, 1952, that it approves in principle an amendment of section 704 in the Food, Drug, and Cosmetic Act, which authorizes a reasonable factory inspection by the government later to be recommended by the Association that provides due safeguards and qualifications against a misuse of this authority. For this amendment is required by the recent decision of the United States Supreme Court (in the Cardiff case) that such an inspection can now be made under the Act only where it is permitted.

The Association took several important steps to broaden its activities so that the Association will be of greater value to its members. One of these innovations is the creation of an Export Section. There formerly existed an Export Committee, but this important phase of the pharmaceutical industry is now raised to the status of a section of the Association.

Another innovation is the creation of a Personnel Committee. This committee will study and report on all sorts of personnel problems which face the members of the Association. These will include, among others,

working conditions, pensions and other personnel welfare problems.

A third innovation is the authorization to engage a full-time economist to be located in the New York office of the Association. This step was recommended by Howard Fonda when he was president of the Association. It will be the duty of this economist to study economic conditions from the point of view of the pharmaceutical industry and to report his findings to the members of the Association.

No new members were elected at this meeting. However, two new directors of the Association were elected to fill out the terms of two directors who had resigned due to changes in their positions in the industry. Myron Walker, of Walker Laboratories, and Franklin P. O'Brien, of G. D. Searle & Co. were elected directors for the balance of the terms of Edgar L. Patch, of Armour Laboratories, and J. Paul Folsom, of Medical Economics.

The time and place of next year's mid-winter meeting is December 7, 8, and 9 at the Waldorf-Astoria Hotel, New York.

The Scientific Award of the Association was conferred on the United States Public Health Service. Dr. Leonard A. Scheele, Surgeon General of the U.S.P.H.S., accepted the award. Saying that he anticipated closer collaboration among the professional societies, the industrial organizations, and the health services in some of the critical disease problems not yet solved, Dr. Scheele said:

"To cite an example of such collaboration, I would like to mention one of the most satisfying public health achievements of the past decade: that is the high level of syphilis control attained in the United States. It is the result of research, pharmaceutical production, and public health and private medical practice. Research in serology and penicillin therapy—in which the Public Health Service has had a share—has led to the present status of control. There was a time when we had to rely chiefly on public clinics and rapid treatment centers because of the complexities of the long-term treatment of syphilis. Now every private physician is a venereal disease officer, treating patients in his office; while State and local health departments maintain supporting services of case-finding, contact tracing, referral, and treatment of some patients.

"Our goal in cancer, heart disease, arthritis and rheumatism, and many other serious ailments is to attain just such levels of control—with every practicing physician a health officer, so to speak, giving maximum amounts of ambulatory treatment in his office. Thus the Public Health Service continues to work along with all those who support the unremitting search for case-finding techniques that may be applied on a wide scale for therapies that may ultimately be placed in the hands of the general practitioner, as well as the specialist.

"Several new anti-malarial drugs have come along recently, giving hope of a more effective prophylactic treatment as a means of ridding mankind of this age-old scourge. Encouraging reports within the past few months justify hope that effective preventive vaccines for poliomyelitis will be available in the near future. At the same time, the reported efficacy of gamma globulin in reducing the incidence of paralytic polio gives us an additional reason to believe that pediatricians and family physicians may soon have some useful immunizing agents in their hands. Thus, we strive toward the ideal of having every physician a health officer and toward more extensive practice of preventive medicine."

Speaking on the Eradication of Infectious Diseases, Dr. Alexander D. Langmuir, chief, Epidemiology Branch, Communicable Disease Center, said:

"In Western civilization our greatest progress toward this goal has been achieved with the enteric and insect-borne infections. Our least success has been with the respiratory diseases and those infections which are spread from person to person. Smallpox is our only total success. We can take some pride in the decline for diphtheria. We have only begun our attack against whooping cough. The common cold, streptococcal infections, pneumonias, poliomyelitis, infectious hepatitis, and the contagious diseases of childhood continue almost unabated, although mitigated to a substantial degree by specific anti-microbial therapy.

"The logical approach to the control and eradication of these lies in the principles of immunization. Recent advances in these fields are most encouraging. The growth of viruses in the chick embyro and in tissue culture give promise of new and more effective immunizing agents. The use of mineral oil emulsions to enhance the immune response lends further encouragement to the prospect that practical immunization procedures can be developed for a number of infections not now subject to control."

Speaking on Clinical Indications of Drug Metabolism, Bernard B. Brodie, Laboratory of Chemical Pharmacology, National Heart Institute, said:

Short-cuts to determine how best to use therapeutic agents are now possible because of methods of micro-analysis developed by Dr. Bernard B. Brodie, chief of the Laboratory of Chemical Pharmacology, National Heart Institute, and his staff. As little as 1/10,000,000 of a gram (or 1/280,000,000 of an ounce) of a drug can be accurately determined in blood from the human body.

These short-cut techniques, which replace the old method of clinical trial and error, are of prime importance in the development of new therapeutic agents. Certain drugs, such as digitalis, have required many decades of experience for the medical profession gradually to learn the best way to administer the drug. In the past, good drugs have been relegated to the pharmacological ash heap because of improper administration.

By learning quickly and systematically what happens to drugs in the human body, Dr. Brodie and his staff are finding out how to administer them in order to get maximum effects. Heretofore, most studies have been carried out in animals, which handle drugs differently

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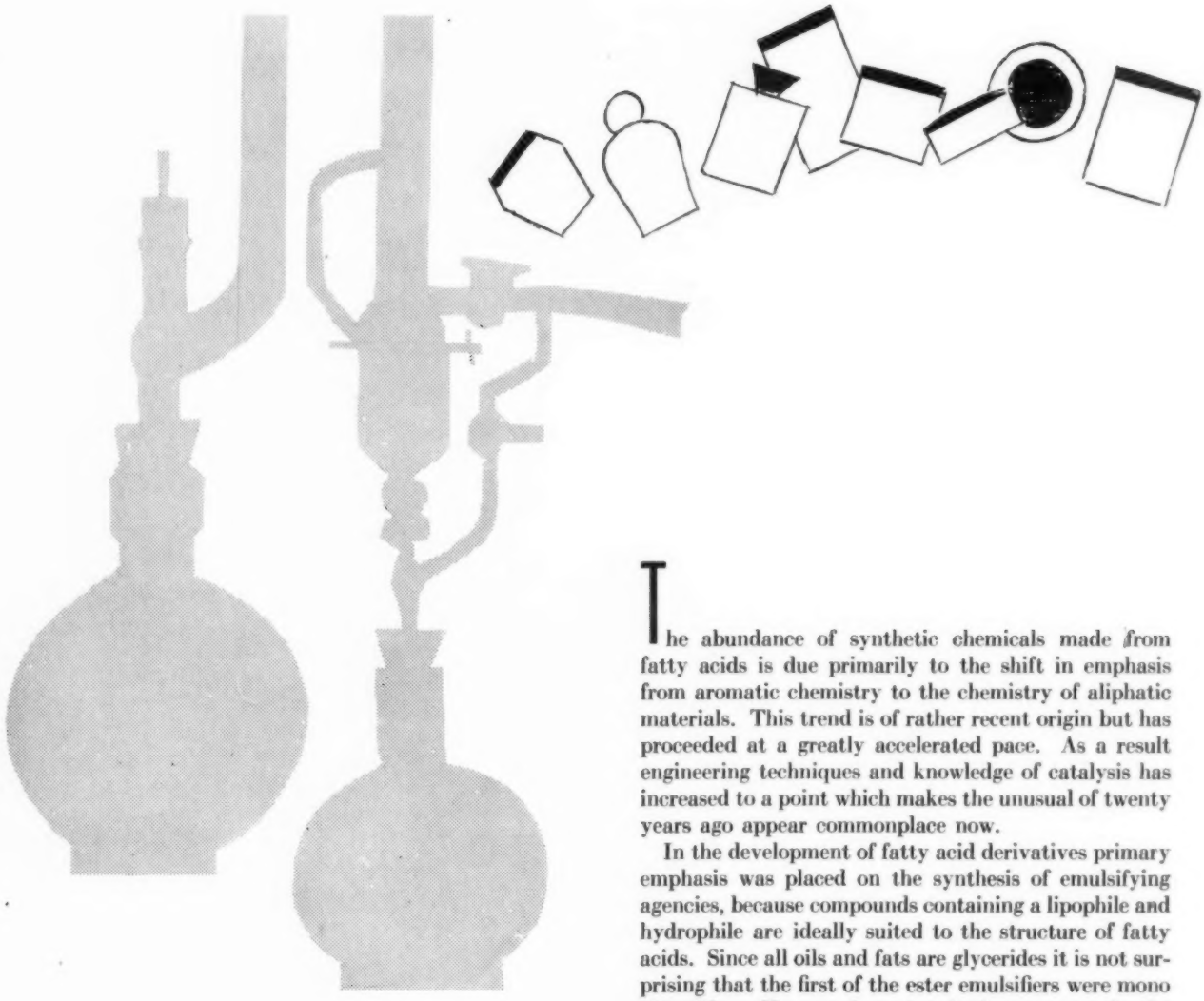

Fatty Acid Esters

by Harry Hilfer

The abundance of synthetic chemicals made from fatty acids is due primarily to the shift in emphasis from aromatic chemistry to the chemistry of aliphatic materials. This trend is of rather recent origin but has proceeded at a greatly accelerated pace. As a result engineering techniques and knowledge of catalysis has increased to a point which makes the unusual of twenty years ago appear commonplace now.

In the development of fatty acid derivatives primary emphasis was placed on the synthesis of emulsifying agencies, because compounds containing a lipophile and hydrophile are ideally suited to the structure of fatty acids. Since all oils and fats are glycerides it is not surprising that the first of the ester emulsifiers were mono glycerides. Here we have two hydroxy groups in the glyceride available for hydrophilic function while the fatty acid esterified to the third hydroxy group becomes the lipophile. The first of these emulsifiers was glyceryl monosterate, but from this beginning we have a whole host of compounds now available commercially including the oleate, myristate, laurate, and palmitate. In addition other polyhydric alcohols have been introduced which considerably increase the scope now possible in emulsification problems. The newer agencies include propylene glycol esters as well as the esters of sorbitan and polyethylene glycols. The sorbitan esters in addition may be polyethylated, increasing the size of the hydrophile to any desired size.

These esters or their mixtures are capable of formation of almost any desired type of emulsion ranging from water-in-oil emulsifiers to a point at which particle dispersion is so small as to be invisible to the naked eye and therefore causing the pipoid to appear in solution in water.

The stearic acid mono glycerides were responsible for the introduction of the antiperspirant creams—still extremely popular. Since they are non-ionic in character

they are not affected functionally by introduction of large amounts of electrolytes. It was therefore possible to formulate a stable cream containing as much as 20 per cent of aluminum sulfate by forming the emulsion with glyceryl mono stearate in conjunction with other surface active agents not affected by an acid pH. Other esters are being used as well for the same reason. Small additions of mono glycerides are further used to enhance the stability of many of the hand lotions now on the market as are the sorbitan esters. In most cases the emulsion also contains a small amount of soap the function of which may be regarded as a means of dispersing the ester in the water phase so that it may better do its job. Other surface active agencies such as sodium lauryl sulfate or sodium cetyl sulfate also serve as a means of carrying out this function.

If the use of soap or emulsified alcohols is thought of as undesirable, introduction of the proper amount of an emulsifier containing a large lipophilic chain is capable of serving this function also. During World War II when alcohol procurement became difficult if not impossible, use of the highly ethoxylated sorbitan monolaurate served to disperse essential oils in water so as to make them appear to be in solution. Indeed they are still being used as additives to essential oils to make them water soluble.

Sulfated mono glycerides also serve as detergents. One of the best known dentifrices on the market util-zes glycerol mono laurate mono sulfate as its detergent. It is also being used as the active ingredient in a shampoo. These compounds are patented but their importance cannot be underestimated since they are described by Bailey in his Industrial Oil and Fat Products, second edition, as "must be considered, potentially at least, as among the cheaper types of synthetic detergents." Bailey further states "they are unaffected by hard waters, and are excellent for most cleaning purposes."

On the opposite side of the scales we have some quaternary ammonium compounds in which fatty esters are used as part of the molecule. A typical example is the lauric acid ester of mono ethanolamine which is acetylated and then joined to a pyridinium radical as well as an anionic detergent where the ester of lauric acid and mono ethanolamine is further treated to form the sulfonate, which compound is used as a dental detergent.

All compounds so far discussed have been surface active agents where the fatty acid has been esterified to a hydrophylic group. These compounds have assumed a place of great importance in the emulsion field because of versitility possible by virtue of the large number of different ratios of hydrophile to lipophile. The esters are therefore used in compounds ranging from emulsion stabilizers to stabilizers of normally insoluble materials in water. During the past twenty years other esters have been made available possessing no surface tension reducing functions, but which are characterized by extremely low viscosities coupled with a great resistance to oxidative rancidity.

One of the difficulties inherent in the use of natural fixed oils such as almond oil, cottonseed oil, or olive oil, was the tendency of the oils toward oxidative rancidity. This was due to the presence in the molecule of unsaturated linkage which was capable of reacting with oxygen into subsequent production of peroxides—forerunners of the compounds associated with a rancid odor. Glycerides consisting of saturated fatty acids were waxy in their consistency and therefore could not be substituted. Esters of low molecular weight monohydric alcohols or saturated fatty acids, however, produced compounds which were liquid at room temperature and not subject to becoming rancid. These are not out and out substitutions of the natural fixed oils—nor are they used as such—but they possess some of the characteristics desired in them, enough to make them interesting.

The best known commercial examples of this type of compound are butyl stearate, palmitate and myristate, and isopropyl stearate and myristate. Their freezing points vary—the lowest one being the isopropyl myristate, but at room temperature they are characterized as liquid of low viscosity whose introduction into a cosmetic markedly lowers the film thickness of the applied preparation. They may be used in lipsticks, for example, to make application easier, since they materially reduce the inertia caused by the high viscosity of castor oil. They are also used in facial makeups to decrease film thickness so that after application there is no "greasy" appearance. They were used in makeup lotions formulated with pigments and opacifiers in which the vehicle was one of the esters discussed, where the film containing the pigments could be easily applied without appearing "greasy"—rather unusual for a completely anhydrous component of makeup pastes which are also anhydrous. Essential oils are easily dissolved in these substances and the application of several of these products as essential oil carriers has been patented. They are also being used in hair preparations where low viscosities are desired so that larger areas may be treated with a given amount of oil.

Uses for these esters are becoming more and more numerous and since the combinations possible are so great we may further expect additions to the already increasing number of compounds now commercially available.

Dr. S. D. Gershon, left, assistant director of research of Lever Bros., awarding Society's medal to Dr. Everett G. McDonough, vice-president and general manager of Evans Research and Development Corp.

Cosmetic Chemists Meeting

Paul G. I. Lauffer, of the George W. Luft Company, was installed as president of the Society of Cosmetic Chemists at its meeting held at the Biltmore Hotel, New York, December 11. Retiring President S. D. Gershon, of Lever Brothers, turned the gavel over to Mr. Lauffer at the conclusion of the Medal Award Dinner held in the evening.

Dr. Everett G. McDonough, of Evans Chemetics, was the recipient of the award, principally in recognition of his work on the use of substituted mercaptans as depilatories and as the basic ingredient in the cold permanent wave. The use of these mercaptans for one or the other of these applications is accomplished by a change in the pH of the preparations. Dr. McDonough was granted U.S. Patents on his cold wave use just a year before he received the award. The patents had at that time been ten years in the patent office.

Dr. Francis Chilson spoke on Dr. McDonough, the Scientist, and George B. Finnegan spoke on Dr. McDonough, the Man. The presentation was made by Dr. Gershon.

Results of the election of officers of the Association resulted in Dr. Donald H. Powers, of Warner-Hudnut, Inc., being named president elect; Robert L. Kramer, of Evans Chemetics, Inc., was reelected secretary; and Moody L. Crowder, of Pond's Extract Company, was reelected treasurer. Ruth Bien, of the Good Housekeeping Bureau, and Kenneth L. Russell, of Colgate-Palmolive-Peet Company, were elected directors of the Society.

It was announced at the meeting that the Society has established permanent headquarters at the New York Academy of Sciences, 2 East 63 Street, New York. Cornelia van der Linde, recently appointed Corresponding Secretary of the Society, will conduct affairs at the headquarters.

Much interest was expressed at the meeting in the paper delivered by Dr. A. Presnell, of the Andrew Jergens Company on Infrared Spectrophotometry of Essential Oils. Recently, said Dr. Presnell, this method has proven valuable in routine examination of a wide variety of oils. However, infrared spectrophotometry is most useful in detecting adulteration of oils. As a general rule it cannot detect materials present in very low concentrations, and because of this limitation it cannot directly indicate differences in odor in two samples of practically the same composition. There are, however, available methods of concentrating traces of impurities which so often have a marked effect on odor.

Robert E. Saute, G. J. Sperandio, and H. G. DeKay,

of Purdue University School of Pharmacy, reported on Organic Chemical Compounds in Cold Waves. Aqueous solutions of thiourea, cysteine hydrochloride, taurine, mercaptosuccinic acid, b-Mercaptoproprionic acid, and thioglycolic acid, adjusted to pH 7.4 were evaluated on their ability to curl human hair at room temperatures. A suitable cream base was formulated in which these chemicals could be incorporated, and these resulted were compared with three popular commercial home permanent wave kits. Experiments showed neutralizers to be of little value. Toxilogical studies on humans and rabbits showed that thioglycolic acid was more irritating to the skin than the other compounds tested in the cream base.

Dr. Donald H. Powers and G. Barnett, of Warner-Hudnut, Inc., reported on Further Studies on Swelling of Hair. Using the techniques developed by Barnett and Valko in their study of swelling of hair by the centrifuge method, a study was made of the action of thioglycolate salts. The critical effect of pH on swelling was noted, particularly in the 9.0 to 9.5 region. The rates of swelling and de-swelling were noted and the effectiveness and rate of de-swelling with different neutralizers.

Drs. Thelma Warshaw, Marion Sulzberger, and Franz Herrman, of New York University Medical Center, reported on the Incidence of Allergic Skin Reactions to Lanolin, to its Components and Certain Lanolin Modifications. Patch tests for hypersensitivity of the skin to lanolin were carried out routinely on more than 1,000 patients who attended the Section of Allergy of the Skin and Cancer Unit of New York University Hospital during a period of eighteen months. In those who showed hypersensitivity to lanolin, a special study was made of their response to different components of wool wax.

In consequence of the results of these investigations, lanolin and lanolin constituents modified by esterification of the hydroxyl groups, were made available for further testing and clinical application. Individuals who were hypersensitive to lanolin showed negative or milder test reactions to the altered products.

Dr. Louis C. Barail discussed the Value of Chlorophyll Derivatives as Local Deodorants.

Field studies were conducted on drugs and cosmetics containing chlorophyll derivatives to determine their efficiency as local deodorants. The active ingredients were of various kinds, colors and concentrations. The products tested were also very diversified: surgical solutions, ointments, tooth pastes, mouth washes, chewing gum and candies.

It was found that several factors of variable importance influenced the local deodorizing properties of the active ingredients:

1. The basic activity of the chlorophyll derivatives used.
2. The concentration of the chlorophyll derivatives.
3. The grade, purity and handling of the various ingredients of the formula.
4. The compatibility or inhibition or synergism of the other ingredients in the formula.
5. The perfection and cleanliness of the manufacturing equipment, processing and packaging.
6. The freshness and storage duration of the finished product.

Because of these many variables, there are great differences in the efficiency of products whose formulae seem to differ only slightly as far as ingredients and their respective concentrations are concerned. As a rule, better results were found when purer products and higher concentrations were used. However, there were cases where the performance did not correspond to the quality and concentration of the ingredients used and the cost involved. This was explained by overlooked incompatibilities or inhibitions, or insufficient care during the manufacturing process.

There were also cases where the deodorizing inefficiency did actually correspond to low grade products used, lack of skill, insufficient technical knowledge or lack of elementary care.

These investigations, following our previous reports confirm the usefulness of most chlorophyll derivatives

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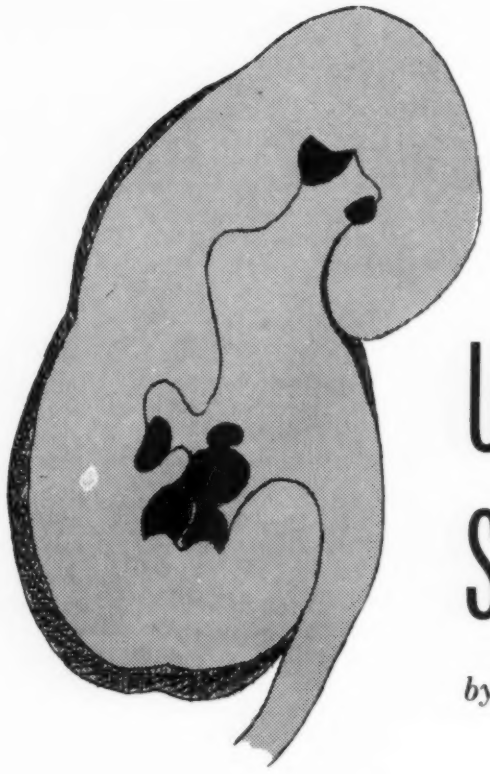
Presidents of Society who attended meeting at Biltmore Hotel. Left to right: Dr. R. H. Marriott, County Perfumery Co., Ltd., London, president of Society of Great Britain; Dr. S. D. Gershon, Lever Bros., outgoing president of Society of Cosmetic Chemists; Dr. Donald H. Powers, Warner-Hudnut, president elect; and Dr. Paul Lauffer, George Luft Co., president.

Speakers at December 11 meeting of the Society of Cosmetic Chemists. Left to right: Edward Sagarin, Sagarin Institute for Olfactory Research; Louis C. Barail, consulting biochemist and toxicologist; Warren B. Blumenthal, Titanium Alloys Mfg. Division, National Lead Co.; A. Presnell, the Andrew Jergens Co.; D. H. Powers, Warner-Hudnut; Thelma Warshaw, New York Univ. Medical Center; Prof. H. G. DeKay, Purdue Univ. School of Pharmacy; and James H. Baker, program chairman.



Urinary Stones

by Milton A. Lesser

Urinary Calculi, better known as kidney or bladder stones, are unpleasant things. It is true that in many cases the stone does not trouble its owner and he in turn does not bother the stone. Nonetheless urolithiasis is in every sense a serious disease and the pain and pathologic complications associated with urinary-stone formation make it one of the chief problems in the field of urology.

Of course urinary stones are not newcomers to mankind's long list of ills. Throughout the ages, urinary calculi have plagued man and have taxed the ingenuity of the physician. It is said[1] that the earliest known calculus was found in an Egyptian mummy estimated to be about 7,000 years old. Lithotomy was practiced in ancient Alexandria,[2] and "cutting for the stone" was an established surgical procedure during the Middle Ages. Later Pepys wrote in his famous diary that a stone had been removed from his bladder and that he had preserved the specimen in a beautiful case made especially for it. Today surgery is still employed for removing calculi, but the procedure has been freed of the pain and fear formerly associated with cutting for the stone. In addition, much has been learned concerning the treatment and prevention of these concretions.

It has been estimated[3] that about five million persons in this country have stones in their kidneys or bladder. Although stones are found in children and in the aged,[4] urolithiasis is seen more often between the ages of 20 and 50. The condition is more common in males.[1] Also noteworthy is the fact that there are so-called stone areas or stone belts throughout the world where calculi occur with unusual frequency.[5] As noted by Lattimer,[6] Florida and California, Central Russia, Indo-China and Syria are well known as stone districts. It is not known whether this is due to the hot climate or to certain peculiarities in the diet. The greater frequency of the condition is not related to the hardness of the water or to geologic strata.

In South Africa, for example, 5 per cent of the white patients showed renal calculi, but no stones were found in the million negroes living in the same area. This observation and similar reports have led to the belief that the negro is comparatively immune to the disease. However, the studies of Dodson and Clark[7] show that although urolithiasis may occur less frequently in the negro than in the white race, it is by no means uncommon among them. Moreover, the condition is generally more serious when seen in the negro.

A urinary calculus may be described[4] as a stone-like concretion composed of urinary salts bound together by a colloid matrix of organic matter. It generally consists of a nucleus around which are deposited concentric layers of one or more of the urinary salts. The size of the concretions may vary in size from small sand-like particles, called urinary gravel to large oval or branching (staghorn) calculi which fill the whole kidney pelvis and branch into the calices.[8]

In the great majority of cases, says Laughlin,[1] the formation of urinary calculi takes place in the kidney. Stones may migrate to the ureter, the bladder or the

urethra but, says he, the fact remains that most urinary stones have their origin in the kidney itself. Stones are very tiny when first formed and many of the almost microscopic calculi pass down the ureter to the bladder and are washed out in the urinary stream without the individual's knowledge. However, stones of one to three millimeters in diameter usually cause considerable pain as they pass down and out. In other, less fortunate cases, the stones remain in the kidney, ureter or bladder. In some instances, they may grow to rather enormous size.[9,10]

It appears that many factors are concerned in the formation of urinary calculi, but, of course, not all of these factors are present in every case. According to Hanley,[11] the two chief predisposing factors are urinary stasis and infection. Other causal considerations include colloid-crystalloid imbalance, endocrine disturbances, vitamin A deficiency, urine concentration, climate and, as already indicated, race.[12]

Stasis may be due to an obstruction in the urinary tract or may result from immobilization in bed.[6] From 10 to 18 per cent of patients who are recumbent for prolonged periods may form urinary calculi, and 95 per cent of the stones formed in these cases are composed of calcium phosphate.[13] Although stasis of the urinary stream may result from several causes, the effects are the same—namely, poor drainage, stagnation of the urine, increased concentration of urine, and precipitation of the salts out of solution. The small particles thus formed, if not washed out, may form the nucleus of a large calculus.[1]

In some cases, infection is a primary cause of calculus formation. This is particularly true if urea-splitting organisms, such as those of the proteus group, are present to render the urine alkaline by liberating ammonia. Some authorities[1] believe that bacteria and products of inflammation may themselves form the nucleus of a stone.

Renal lithiasis is frequently found in association with hyperparathyroidism;[14,15] this endocrine disturbance being the cause of kidney stones in from 4 to 5 per cent of cases.[16] In patients with this disorder there is an increased secretion of calcium and phosphorus in the urine and this probably produces an upset in the colloid-crystalloid equilibrium.[11]

Vitamin A deficiency may have an important causal relationship with stone formation. According to Higgins,[16] about 40 per cent of patients with calculous disease show a positive eye test of vitamin A deficiency. This urologist[17] also notes that certain metabolic diseases may also enter the etiologic picture. Thus, a patient with gout may form a large renal calculus or suffer frequent bouts of colic from the passage of small stones or showers of uric acid crystals.

Concentration of the urine, either as a result of inadequate fluid intake or excessive sweating, may also lead to calculus formation. Wartime studies showed that stone formation was prevalent in all areas where sweating was heavy.[6]

Some workers[18,19] are of the opinion that the use of alkalis in the treatment of peptic ulcer and other gastrointestinal complaints are among the factors predisposing to urinary stone formation. However, others[20] feel that there is insufficient evidence to support this view.

A number of theories[21,22,23] have been advanced to explain the actual formation of a urinary calculus. As already indicated, there are those who[24] believe that urinary tract infection produces debris and epithelial desquamation which may act as nuclei for stone formation. In expressing the view that these older concepts are being looked upon with increasing doubt, Lattimer[6] called attention to Randall's[25] work. It was Randall[26] who first drew attention to the fact that a small calcium plaque on the renal papilla may act as the nidus for the formation of a renal calculus. His observations have since been confirmed by Vermooten.[27] The type of calculi which are formed presumably depends on the diet and metabolic disturbances.[28]

The composition of a urinary stone is an important consideration since it may provide valuable clues regarding prevention and treatment. Since pure stones are rare, the calculi are generally classified according to their main chemical constituent. As remarked by Vermooten[28] uric acid, calcium urate, cystine and Xanthine calculi develop in an acid urine. Calcium or ammonium carbonate or phosphate calculi form most commonly in an alkaline urine, while calcium oxalate stones are generally found in neutral urine. Thus, the

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BETTMAN ARCHIVES

Hormones and Hair Growth*

by Theodore H. Roberts, B.S., M.S.

UNITED RESEARCH LABORATORIES, INC., PHILADELPHIA

Investigations to determine the cause of baldness are abundant and varied. In the following presentation, we shall seek to analyze the effects of hormones on the piliary system. Previous investigational studies have indicated that within the pituitary, there exists a definite hair hormone which first actuates and subsequently maintains the growth of head hair, eyelashes and eyebrows. These are considered as primary hair characteristics. These studies also indicate that within the gonads, there exists a hormone which actuates and subsequently maintains the growth of beard, body, and pubic hair. These are considered as secondary hair characteristics.

Hormones modify the growth of hair in a way that is different from the effects they elicit elsewhere in the body. The response of hair to the action of these hormonal agents is so unique that the piliary system should be regarded as a special target organ. The results obtained with three different type hormones: (a) androgenic hormones, (b) estrogenic hormones, and (c) a new hormone, the dermatotropic hormone, will be discussed in this paper.

As is well-known, the androgenic hormones are active in head hair loss.[1] Patients treated with testosterone propionate showed a noticeably oily scalp. Histological sections show decided increase in the number and size of the sebaceous glands in the scalp during this period, which change was not wholly maintained after the use of testosterone was discontinued.

An early report states that the male sex hormone stimulates the oil producing glands of the head to produce sebum which causes the hair to fall out. The sebum was obtained by adding a fat solvent, such as ether, to human hair. The resulting mixture of hair and solvent was then filtered. After this, the solvent from the filtrate was evaporated, leaving the sebum as residue. When the sebum was painted on the skin of rabbits and mice, all of the rabbits and most of the mice lost their hair within ten days.

In a later report, the same investigator[2] stated that sebum obtained separately from men, women and children, caused reversible hair loss in all of the rabbits tested. He therefore states that the present question of whether or not the depilatory action of sebum in animals has anything to do with the development of common male baldness cannot be answered at this time. It was shown that the unsaturation of the chemical bonds for the sebum was essential for its depilation activity.

Treatment of patients with estrogenic hormones and histological sections taken indicate a definite atrophic effect on the sebaceous glands.[3] The finding that the estrogens cause reduction in size and number of sebaceous glands in the human scalp is in agreement with Hooker and Pfeifer's[4] report that the sebaceous glands of estrogenic-treated rats become reduced in size.

*Delivered before Scientific Section, Toilet Goods Association, Dec. 10, 1952.

Attention is called to the fact that in the case of premature alopecia, testosterone, while stimulating the sebaceous glands in the scalp and the growth of body hair, does not promote the growth of scalp hair. This indicates that the response provoked by androgens in the hair follicles and in the sebaceous glands, are two distinct phenomena. It is therefore concluded that androgens have a definite stimulating effect on the sebaceous glands of the adult male and that estrogens have a depressing effect on the sebaceous glands of the adult male.

A recent report was made on experimental results obtained in the treatment of alopecia areata with either cortisone or ACTH.[5] Twenty-two patients with severe alopecia areata were treated for ten weeks or more with orally administered cortisone. There was regrowth of hair in 16 of the patients. Six of the patients treated did not respond. In the majority of cases, the regrowth was patchy and the investigators do not recommend this form of therapy for general use.

Other investigators report that inhibition in the growth of hair of rats can be induced by the local application of several pure adrenal cortical compounds.[6]

We wish to report a new hormone, the dermatotropic hormone, which was isolated from the extract of the anterior pituitary gland. To the list of the known hormones, we can now add the dermatotropic hormone which controls the growth of hair.

Action of Dermatotropic Hormone Cream on Falling Hair

Experimental results were first obtained on rats of Wistar strain of 125 to 160 days old. The effect of this hormone on falling hair was demonstrated by hypophysectomizing the animals and they commenced shedding their hair freely after ten days. The dermatotropic hormone in an absorption cream base was well rubbed into a selected area of the skin of each animal twice daily for a period of 30 days. The hair in the areas so treated ceased falling out. It was observed that after only 4 days' treatment with dermatotropic hormone cream, the hair of the treated areas had tightened up to such an extent that the weight of the animal could be supported thereby and when pulled, caused the animal to squeal in pain. The hair of the animals in the areas not treated with dermatotropic hormone cream continued to loosen and fall out except for the islands of hair regenerated by the treatment.

Action of Dermatotropic Hormone on the Growth of Hair

Animals which were hypophysectomized were permitted to lose their hair following which time these bald animals were treated with dermatotropic hormone cream by topically applying the same to selected areas of their bald skins twice daily for a period of 15 days. At the conclusion of this treatment, hair was found to be growing out of the selected areas and on continued treatment, such hair continued to grow until it reached the full growth of a normal animal. However, the untreated areas remained bald and when the hair of the treated areas had reached its full growth, there was still no nestige of hair growth on the untreated areas. Other bald animals were treated as aforesaid by the application of dermatotropic hormone cream over the whole of their hairless areas and following such treatment, each of these animals again had its full complement of fully grown hair. The dermatotropic hormone cream which contained 0.14 mg. of dermatotropic hormone per application, was rubbed on the hairless area for one minute twice daily, until the hair regrew to full length.

Action of Dermatotropic Hormone by Injection

Other hypophysectomized animals were permitted to become bald. They were then given subcutaneous injections twice a day of the hormone solution containing 0.035 mg. of dry hormone per gram of body weight. The hair grew back in a normal manner over the whole of their hairless areas, to its former length in an average of 30 days. The animals kept as controls did not show their regrowth. An extract of the animal experiments conducted are as follows:

EXTRACT OF EXPERIMENTS

Age & Sex of Rats (Days)	Body Wt.	Days after hypophysectomy when alopecia became evident	Treatment dosage—per day	Days of Treatment when growth of hair became evident	Days of Treatment to effect complete recovery
160M	250	8 days	7 mg.	12 days	26 days
125M	185	10 days	7 mg.	10 days	28 days
125M	220	12 days	7 mg.	13 days	29 days
125M	225	10 days	7 mg.	10 days	30 days
125M	235	10 days	7 mg.	11 days	32 days
125F	250	15 days	7 mg.	14 days	38 days
130F	260	15 days	7 mg.	12 days	38 days
130M	280	15 days	7 mg.	11 days	37 days
140M	300	15 days	7 mg.	15 days	32 days
140M	310	15 days	7 mg.	12 days	34 days
150M	285	10 days	14 mg.	10 days	30 days
125F	245	12 days	3.5 mg.	15 days	36 days
125M	357	12 days	3.5 mg.	15 days	34 days
125M	260	15 days	1.4 mg.	—	30 days
125M	250	15 days	1.4 mg.	—	30 days
125M	200	21 days	7 mg.	—	30 days
125F	260	20 days	5 mg.	—	32 days

The biopsies of the skins of the bald hypophysectomized animals show an atrophy of the hair follicles and degenerative changes in the epidermal cells. The resumption of the function of the epidermal cells and papilla was evident after two weeks of treatment with dermatotropic hormone and the growth of hair was evident in full after 30 days of treatment with dermatotropic hormone. A maintenance dose is required for the hypophysectomized animal to maintain its hair.

Action of Dermatotropic Hormone in Humans

As a consequence of the success of these animal experiments, work was done with humans. There have been no untoward reactions observed whatsoever. The scalps of those human patients treated with cream or by intramuscular injections are healthy and there are no signs or symptoms of dermatitis of any sort.

Investigational studies on the effect of the dermatotropic hormone on humans have indicated that this hormone is the hair growth factor isolated from the

(Continued on page 129)

Dermatologic Data of Interest to the Cosmetic Industry*

by Samuel M. Peck, M.D.

ASSOCIATE CLINICAL PROFESSOR OF DERMATOLOGY, COLUMBIA UNIVERSITY; DIRECTOR OF DERMATOLOGY, MT. SINAI HOSPITAL, NEW YORK CITY.

COURTESY FRAGRANCE FOUNDATION

In recent years a wealth of physiologic data concerning the skin has been gathered by dermatologists which when properly coordinated and utilized would be of great value to the cosmetic industry.

In the time at my disposal, I would like to discuss briefly with you two fields of research in which my associates and I have been particularly concerned.

The pH of the Skin Surface

There has been a great deal of discussion among cosmetic chemists and dermatologists of the value of maintaining the normal pH values of the skin surface. Cosmetics have been formulated with this end in view. In many instances there does not seem to be a clearcut understanding of the relative importance of the factors which play a role in establishing this pH.

The measurement of the pH of the skin surface by myself and my co-workers,[1] as well as by others,[2] was based on the methods of Blank and Draize[3] using a pH meter with calomel electrodes. All such determinations which are presented as the hydrogen-ion concentration of the skin surface really measure a film of aqueous solution on the skin. This film is influenced by the keratin which it contacts from below, but much more so, by the secretion of the skin glands, especially the sweat.

The pH of the skin surface varies from area to area, from individual to individual, and it is said to be influenced by age, season, sex, etc. We agree that these differences in the pH of the normal skin surfaces from one individual to another may explain the discrepancies in the reported values by workers using the same methods of measurement.

For the most part, the values of the pH of the skin surface reported by other workers are within the limits of those which are given in this paper.

The wide ranges of normal values necessitates the measurement of relatively large numbers of individuals. It has been said that the fluctuations in values are of a special prominence in the female. This has been attributed to the more frequent use of soaps and cosmetics, including hand lotions and skin creams, by such individuals. It seems, however, from our work that we will be able to show that these variations are not as wide as has been reported.

*Delivered before Scientific Section, Toilet Goods Association, Dec. 10, 1952.

The pH of the exposed areas varies from pH4-7, but most of the readings are from 4.2 to 5.6. Blank[4] measured the forearms, the back of the neck, the forehead, as well as the upper arms. The average pH of the female was about 0.5 higher than that of the male. The extensor surfaces of the arms were slightly more alkaline than the corresponding flexor surfaces. His further studies on the pH showed that there were very wide variations in the daily pH of the skin surface of five adult females with normal skins. There was no correlation between the pH of the skin surface and the environmental temperature and since these wide normal variations exist, several measurements made on the surface of any one individual must be carried out before it can be stated that there is an abnormality in that particular individual. This is especially true when evaluating the slight changes caused by the application of cosmetics to the skin.

Table 1

pH VALUES OF NORMAL SKIN OF THE BACK IN 70 INDIVIDUALS

	AREA					
SUBJECT	1.	2.	3.	4.	5.	6.
No. 1	5.05	4.8	5.0	5.1	5.4	4.95
No. 2	4.3	4.2	4.4	4.15	4.1	4.4
No. 3	6.5	6.25	5.9	6.1	5.7	5.9
No. 4	4.8	4.4	4.25	4.0	4.5	4.1
No. 5	5.7	5.3	5.3	5.5	5.15	4.85
No. 6	6.1	5.9	5.75	5.8	5.7	5.7
No. 7	5.4	4.5	4.5	5.4	4.55	4.2
No. 8	3.6	3.3	3.0	3.2	2.7	3.0
No. 9	3.9	4.0	3.3	3.8	3.5	3.5
No. 10	5.5	5.25	5.1	5.4	5.2	5.01
No. 11	5.9	5.7	5.5	5.6	5.2	5.05
No. 12	5.6	5.75	5.55	5.5	5.4	5.3
No. 13	4.7	4.15	4.0	4.6	4.2	4.15
No. 14	5.25	4.5	4.75	4.7	4.4	4.5
No. 15	6.5	6.6	6.0	6.05	6.3	6.1
No. 16	5.7	5.95	6.0	6.1	5.9	5.55
No. 17	5.6	4.6	4.5	4.6	4.6	4.65
No. 18	4.9	4.6	4.5	4.6	4.45	4.5
No. 19	5.3	5.1	5.1	5.1	5.05	5.0
No. 20	5.0	4.9	4.85	5.0	4.9	4.8
No. 21	6.4	5.9	5.5	5.25	5.1	5.05
No. 22	5.85	5.3	5.4	5.4	5.45	5.3
No. 23	5.8	5.45	5.4	5.5	5.3	5.2
No. 24	5.5	5.35	5.2	5.4	5.15	5.2
No. 25	5.4	5.5	5.2	5.5	5.3	5.2
No. 26	5.6	5.6	5.35	5.6	5.5	5.4
No. 27	5.7	5.7	5.6	5.8	5.55	5.5
No. 28	5.95	5.7	5.55	5.9	5.65	5.6
No. 29	5.15	4.9	5.0	5.0	4.9	4.9
No. 30	5.7	5.8	5.5	5.5	5.5	5.3
No. 31	4.8	4.9	4.9	4.95	4.8	4.7
No. 32	5.4	5.4	5.3	5.6	5.4	4.3
No. 33	6.1	5.8	5.5	6.0	5.9	5.8
No. 34	5.7	5.7	5.5	5.8	5.6	5.5
No. 35	5.8	5.5	5.05	5.65	5.3	5.1
No. 36	4.8	4.8	4.75	4.8	4.6	4.5
No. 37	5.4	4.95	4.0	5.25	4.9	4.85
No. 38	5.4	5.2	5.15	5.4	5.2	5.15
No. 39	4.9	4.7	4.55	5.15	4.75	4.7
No. 40	5.3	4.6	4.6	4.7	4.7	4.5
No. 41	5.4	5.05	5.0	5.1	5.0	4.95
No. 42	5.2	5.05	4.6	4.9	5.05	4.8
No. 43	5.7	5.3	5.1	5.4	5.2	4.9
No. 44	5.3	5.3	5.2	5.3	5.4	5.3
No. 45	5.0	4.9	4.8	4.8	4.75	4.7
No. 46	6.6	6.35	6.35	6.3	6.1	6.0
No. 47	5.8	5.75	5.2	5.4	5.3	5.15
No. 48	6.0	5.5	5.2	5.2	5.4	5.15
No. 49	6.6	6.1	6.1	6.2	6.0	5.9
No. 50	5.8	5.55	5.65	5.7	5.9	5.9
No. 51	4.6	4.4	4.5	4.35	4.35	4.4
No. 52	5.75	5.5	5.6	5.7	5.2	5.4
No. 53	5.15	5.1	5.0	5.05	5.1	4.9
No. 54	5.25	5.0	5.1	5.0	5.2	5.2
No. 55	6.2	6.35	6.0	5.9	6.25	6.5
No. 56	5.4	5.35	5.3	5.2	5.1	5.3
No. 57	5.1	5.1	5.0	4.9	4.85	4.9
No. 58	4.8	4.65	4.7	4.65	4.7	5.0
No. 59	4.8	4.85	5.15	4.7	4.75	4.9
No. 60	4.4	4.1	4.05	4.4	4.1	4.3
No. 61	4.9	4.6	4.9	5.0	4.55	4.75
No. 62	3.95	3.9	3.8	3.9	3.85	3.8
No. 63	5.15	4.9	4.9	4.95	4.9	4.8
No. 64	5.9	6.05	5.6	5.65	5.9	5.8
No. 65	5.05	4.9	4.8	4.7	4.6	4.65
No. 66	4.15	4.0	4.3	4.15	4.1	4.3
No. 67	4.8	5.05	5.0	5.5	5.2	4.9
No. 68	5.5	5.45	5.25	5.4	5.4	5.3
No. 69	5.0	4.7	4.5	4.6	4.65	4.7
No. 70	5.25	5.2	5.1	5.35	5.15	4.95
AVERAGE	5.36	5.155	5.01	5.015	5.004	4.875

The pH of the skin on the back was determined in seventy individuals. The centers of six areas of the back were tested as indicated in figure one. The pH was determined by the means of a pH meter (Beckman) using glass calomel electrodes.

It can be seen from Table I that the pH of the skin of the back varied from a low of three in one individual to a high of 6.6. The average reading for all areas of the back was 5.069. Males seem to have a lower reading than females. Since the few males that we used in our series were doing manual labor, the lower pH values probably were due to the high content of lactic acid in work sweat.

The experiment was started in September when we had warm, humid weather (subjects 1-20) and continued up to the present time. The last 15-20 subjects were studied in November. There did not seem to be any appreciable effect on the pH due to differences in temperature and humidity.

It also can be seen from our table that comparable areas (figure 1) had about the same pH and that the pH became more acid from the shoulders to the waist.

In 1929 Macchionni[5] and others[5c] published their theory concerning the acid mantle on the skin as a defense mechanism against infection and fungi in particular. They seemed to be able to show that in areas where the skin was acid there was less tendency to fungus infection. This theory did not explain the role of this acid pH in the defense mechanism against infection other than just the question of an acid cloak. It was even suggested that dilute hydrochloric acid be used for the treatment of fungus infection.

It is important to stress at this point that while it is true that the pH of the skin surfaces is usually on the acid side, it is not the pH as such which is important in maintaining the defense mechanisms of the skin against infection.

In 1939[6] I became interested in the conception that it was the constituents of sweat which played the chief role in the protective cloak on the skin surface against both bacteria and fungi. This idea especially interested me because with my associates we were able to demonstrate that a number of the lower fatty acids found in the sweat were fungistatic as well as bacteriostatic. It was not the pH per se that was important, but the factors which go into the formation of the pH value which render the acid cloak a protective film against infection.

(Continued on page 129)

Waving Lotions and Mechanical Properties of Hair

*by W. W Hamburger and H. M. Morgan**

FABRIC RESEARCH LABORATORIES, INC., BOSTON, MASS.

Human hair has been the victim of many attacks. There exists a great urge to modify its natural form to conform to the changing social scene. The modifications range from the curling of straight hair to the straightening of curly hair, from the lightening of dark hair to the darkening of white hair.

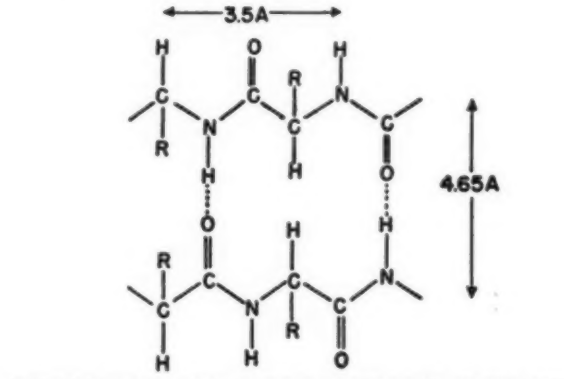
The manufacturer of hair preparations must meet these demands of fashion with new and exciting products, but at the same time he must be aware of what these products will do to the physical behavior of the customer's hair. The work which will be presented is a test evaluation which has been developed as a quality control check on the effects of certain preparations on the mechanical behavior of hair. The test technique has been based on theories about the chemical and molecular structure of hair. These theories, and the experiments which lead to their formulation, were described at the Gordon Research Conference in July 1952 and will be published in the near future in the *Textile Research Journal*.

The basic theories involve the interpretation of the tensile load elongation behavior of hair fibers in terms of the molecular structure. No attempt will be made to justify some of the concepts, but they will be merely reviewed at this time and used to interpret the effects of the treatment of hair with waving lotions. The full description and justification of the ideas will appear in the above mentioned publication.

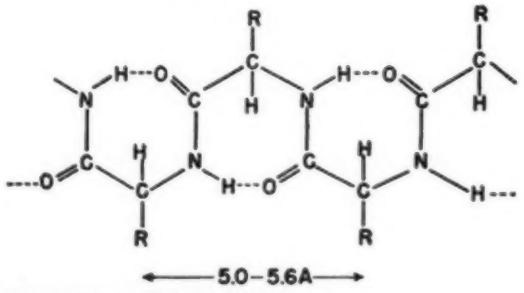
Many concepts have been advanced to depict the molecular structure of the keratinous proteins, hair

*Delivered before Scientific Section, Toilet Goods Association, Dec: 10, 1952.

and wool. The theory proposed by Bamford[1] has been found to be consistent with our experimental observations and has been adopted as the starting point of our idea of hair structure. In Bamford's idea, the long chain combinations of amino acids, of which proteins are composed, are folded in a regular form as shown in the bottom of Figure 1. The amino acid chain winds around in this folded manner and is stabilized by hydrogen bonds holding together two parts of the same chain. The hydrogen bonds are indicated by the dotted lines. The basic length of the fold is given by the distance between a structural repeat, i.e., from 5.0 to 5.6 A. The variation is due to slight differences for the different polypeptides.



STRUCTURE I.- THE FULLY EXTENDED FORM OF POLYPEPTIDE CHAINS. TWO ANTI-PARALLEL CHAINS LINKED BY HYDROGEN BONDS (----) ARE SHOWN.



STRUCTURE II.- THE α_K FOLD.

FIGURE 1

Molecular configuration of polypeptides and proteins. C. H. Bamford, Proc. Roy. Soc. Med. 44, 393-8 (1951).

The folded structure can be extended to the unfolded form shown in the top of Figure 1. The basic length of the extended form is given by twice the distance shown or 2 times 3.4 A, i.e., 7.0 A. Again the specific length varies for the different polypeptides, hair and wool being slightly shorter than this, or 6.7 A. However, the extended structure is from 25 to 35 per cent longer than the folded form in most cases.

In the extended form, the hydrogen bonds (———) are perpendicular to the main chain direction and exist between, rather than within, the chains. Thus, the extension of the original folded form consists of straightening it to a new form approximately 25 per cent longer and results in a change of the intra-chain hydrogen bonding to inter-chain hydrogen bonding. These bonds must be broken, and reformed, in the extension to the new structure. It is reasonable to conclude that the resistance to unfolding will, in a large part, be dependent on the strength of these hydrogen bonds.

Bamford developed his theory to describe the structure of certain synthetic polypeptides. In using it to describe hair and wool, the very important disulfide bonds, and the part they play, must be introduced. Experiments performed at Fabric Research Laboratories, Inc., have shown that the disulfide bonds play a minor role in the resistance to unfolding, but a major role in the resistance to further extension of the unfolded structure. The theory used to adapt Bamford's folded structure to the case of hair and wool was described at length in the unpublished work already mentioned.

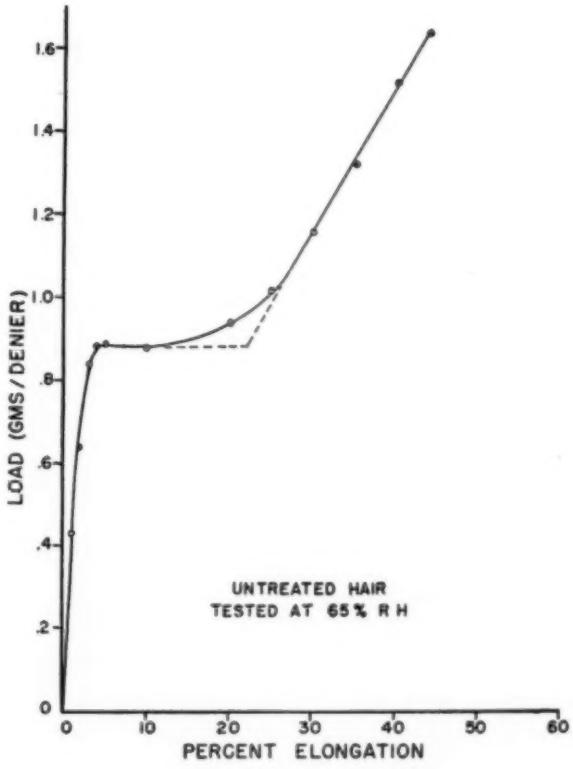


FIGURE 2

Normal load-elongation behavior of untreated hair tested at 70°F—65% R.H.

Figure 2 is a diagram of the typical load elongation behavior of single hair fibers tested at 70°F. and 65 per cent R.H. This diagram is achieved by elongating single fibers at a constant rate and recording the tension built up in the sample. The fibers show an initial high resistance to elongation in the early or Hookean portion of the diagram. This is followed by a pronounced

(Continued on page 123)

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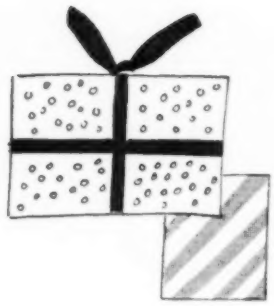

Packaging and Selling

Cosmetic Panel

The executive panel of the cosmetic industry, conducted by BEAUTY FASHION and published in their January issue, brings to light some interesting opinions of executives in the manufacturing cosmetic industry.

In answer to the question, "which products do you think are more and more becoming a regular habit in use, rather than occasional?" the universal opinion was that a deodorant would become 100 per cent a habitive use among American consumers and the lipstick 88 per cent. The following table gives the executives' opinions on this subject for the primary cosmetics:

Lipstick	88%	Perfume	16%
Face Powder	68	Toilet Water	48
Face Cream	56	Cologne	68
Hand Cream	40	After Shave	44
Nail Enamel	68	Men's Cologne	20
Shampoo	68	Deodorant	100

Cosmetic distribution has been expanding over the last twenty years and now includes substantially more than 100,000 stores among which are department stores, drug stores, drug chains, variety stores and grocery stores including the supermarkets. When these executives were asked if they believed that all of these stores for cosmetic distribution contained too many retailers for a billion dollars in retail cosmetic sales, and if they believed this, which group of stores would most likely provide the fringe retailers who would drop their cosmetic department, opinions were listed as follows:

Department stores	9%
Independent drug stores	36
Chain drug stores (single stores)	9
Variety stores (single stores)	41
Supermarkets (single stores)	50
Independent grocery stores	86

As for the long range effect of this greatly expanded distribution for cosmetics, these executives overwhelmingly believe that the chief effect would be an increase in the sale and use of cosmetics and a long range effect on selling methods and selling costs.

Sixty per cent of these objectors believe that glamour and fashion is still an essential, valuable part of cosmetic and fragrance advertising. Considerably less than half believe that glamour has reached its peak in value for advertising purposes. This opinion holds firm in spite of the noticeable increase in editorial advertising among cosmetic manufacturers during this last year and a more or less general industry opinion that this form of advertising will increase, particularly in newspaper space. As an example of what seems to be a confusing point of view on advertising, 68 per cent of these executives believe that the editorial form of advertising or informative copy with less art work and more factual reason-why, is showing the kind of results that will expand its use.

The industry did not seem to have any fixed opinions on whether special groups in the population would justify more special marketing attention. As an indication of the decline, only 34 per cent believe that children's cosmetics would warrant any extra attention. Rather surprising, in view of the tremendous amount of attention marketwise that elderly folks are getting, only 23 per cent of the industry thought that this was a market calling for any kind of specialized attention. The table which shows the percentage of executives who believe that special markets should receive any special attention cosmetic-wise is given below:

Old folks	23%
Children	34
Negro	47
Factory Workers	50
Professional and Office Workers	57
College Students	50

Infringed Trade-Mark

A recent Supreme Court decision in which the justices voted 7 to 2, found that the lower courts could direct the F. W. Woolworth Company to pay to a manufacturer statutory damages of $5,000.00 for infringement of copyright.

Woolworth bought 127 dozen china dog figures at $.60 each and sold them for $1.19, at a gross profit of $899.16. Woolworth purchased these china animals from a source who, unknown to Woolworth, had copied the figures from a competitor.

In the lower court, the trial judge said that if an infringement of copyright was established "it is inescapably clear there is enough evidence upon which to predicate damages up to $5,000.00". This is the maximum for such damages. Woolworth tried to limit their liability to the $899.16 of gross profit, but Justice Jackson of the Supreme Court said the laws permit trial courts to decide whether a "recovery upon proven

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#1
Non-rolling, extra-depth Bakelite cap; thick flange rubber bulb; Saftee ball glass.

#3
Regular plastic cap; thin flange rubber bulb; semi-blunt glass.

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Metal cap; oil-resisting Amekine synthetic rubber bulb, blunt glass.

#5
Small size plastic cap; midget rubber bulb; regular straight glass.

The New Perfection line of functionally designed dropping parts gives satisfaction where satisfaction counts—in the hands of the user. To make sure the customer's first reaction to your product is 100% favorable, specify New Perfection. Our rigid inspection system assures the cleanliness and uniform high quality of every shipment.

New Perfection dropping parts will fit your bottle or can be furnished in combination with our Modernistic bottles in Amber, Blue, Green or Clear glass. Bottle sizes—2 cc, ⅛, ¼, ½, 1 and 2 oz.

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CALIBRATED

IN COLOR

This inexpensive extra adds welcome convenience to the use of your product. Accurate calibration in any color marks the specific dosage indicated. Your firm name or trade-mark may also be imprinted.

#2
Non-rolling, extra-depth Bakelite cap; thick flange rubber bulb; special bent glass (CALIBRATED IN COLOR).

Improved bottle shape. Designed to lie flat for convenient labeling. Front provides ample label space.

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profits and damages or one estimated within the statutory limit is more just."

The two dissenters, Justices Black and Frankfurter, said that they did not believe that the laws authorize "any such manifestly unjust exaction" and that the sum of $5,000.00 awarded "smacks of punitive qualities." The two justices suggested a new trial by a new judge.

New Cosmetics for Ann Delafield

Ann Delafield's new "golden eight" cosmetics in their gold containers will appear on Rexall cosmetic counters around the middle of this month. The line features eight basic beauty products to take care of every woman's basic needs. There is just one cream, the Ann Delafield All-Purpose Deep Cream. A single, rich cream for every purpose—to cleanse, to smooth, protect, to be used as a throat cream, eye cream, skin and neck cream, all in one.

The Face Powder comes in five shades, matched to Ann Delafield's Compact Powder. The Cologne, long-lasting and concentrated, is included as an essential part of good grooming. The Skin Freshener is the scientific pore cleanser.

The five shades of lipstick are crip-edging and indelible, while the Glamour Eyes Compact contains Quick-On mascara, shadow, eyebrow pencil and eye liner.

Colgates "Rapid-Shave" Wins Award

"Rapid-Shave," new acrosol shave product recently marketed by Colgate-Palmolive-Peet Company, was voted the package with "the best merchandising appeal" on December 8th by Chemical Specialties Manufacturers Association, Inc.

Harriet Jones, "Miss Aerosol," presented the award plaque to Manning O'Connor (right), Vice-President of the Colgate-Palmolive-Peet Company. Holding the

prize winning product is Theodore Heilig, President, Regal Chemical Corporation, one of the filling companies of "Rapid-Shave."

The award, the first ever made in the aerosol division, was based on the attractiveness and efficiency of the package. Heralded as one of the greatest discoveries in Shaving history, "Rapid-Shave" is being advertised nationally on radio and television and in magazines as "the new lather bomb—just press the button for instant lather at your finger tips." Other important selling features being emphasized are "faster, smoother shaves —no messy brush, no greasy fingers—rinses instantly, no clogging."

"Rapid-Shave" retails at 79c and comes in an attractive Palmolive green and white can with red lettering. "Rapid-Shave" is shipped one dozen to the carton which contains two half-dozen counter display units.

Dead Words?

Sometimes a collection of words will give a vivid picture of an era. During the last fifteen years in marketing, we have had a bright galaxy of new words which gathered together show very clearly the changes in the evolution that has taken place in marketing methods. Some of these words which show the marketing era that we have been passing through are: one-stop shopping, suburban shopping center, self-service, black and gray markets, and a host of others.

These words surpressed and submerged a group of words which gave a picture of the preceding era. Among these words of a previous era, we recall two very vividly. The first was "profitless prosperity" and the other was "pine board stores."

It was, therefore, somewhat of a shock that in a recent single issue of the Journal of Commerce, under two separate business situations, we saw these two words "profitless prosperity" and "pine board stores" headlined again. If words have any kind of historical meaning, we don't like the implications behind the headlining of what we hoped were dead and buried words.

Schoettle Case Histories:

true story of a

Purchasing Agent in Hot Water

CASE HISTORY #41 Food company* was looking for box-making genius. Purchasing Agent said he was really in hot water over company demands for a box to hold two jars of instant coffee . . . Requirements: maximum display value, automatic load, low cost. (We've heard that before!) Fifteen companies (including Schoettle) were asked to create design . . . Result: Schoettle got the order. Company said Schoettle was only one to come up with smart, practical idea! (We've heard THAT before, too!)

CASE HISTORY #93 Pies were being crushed! Consumers complaining that they couldn't carry them home without pies becoming mush . . . Problem was dropped in Purchasing Agent's lap. Boy, was he in hot water! Only one thing to do: SOS to Schoettle . . . designers worked over-time. Result: a patented new folding box construction with handle on top, at no extra cost! Now Mrs. Housewife carries her pies home in apple-pie order.

Schoettle welcomes problems. We subscribe to the old marine maxim: "Difficult problems solved promptly, impossible ones take a little longer!" Send that folding box "problem child" to Schoettle. You'll get smart, practical solutions!

*name on request

EDWIN J. SCHOETTLE CO.

533 NORTH ELEVENTH STREET • PHILADELPHIA 23, PENNA.

Designers and Manufacturers of Paper Boxes with Buy Appeal

Is It a Retail Revolution?

At this turn of the year when all the prophets are in bloom, there seems to be a growing clamor in the trade press and in convention speeches about the coming American Retail Revolution.

There is something very smooth, harmonious and catching in the phrase "retail revolution". This is natural because the chief writers and orators in promoting the idea that we are in the middle of such a revolution are advertising men. These are the men who see very clearly that this new revolution, in mechanizing retailing and largely eliminating personal selling, is going to place nearly the entire burden of salesmanship on greatly increased advertising budgets. There are also a few in the packaging industry who have not lost sight of the fact that this mechanized revolution is bound to drive into a package everything a consumer purchases and then add to the package all sorts of supplementary treatments that will guarantee display. In spite of the fact that these stokers who are keeping alight the publicity interest in the retail revolution, have very good reasons to do this, it can hardly be denied that many things are happening which are bringing some drastic changes to retailing nor can it be denied that mechanization is coming into the retail trade.

Nevertheless, it can be asked with a certain amount of restraint, and with some degree of good sense, whether there is not a great deal of balony, false prophecy and super-saturated enthusiasm in the talk about the retail revolution.

There would not for instance be very many things to talk about along the line of a retail revolution unless we had the grocery supermarket and the way it uses self-service selling.

The rise of the grocery supermarket is without any question a principal phenomenon of this particular business era of the last ten or fifteen years. It would be foolish to deny that it has brought something new to marketing, that it has contributed a great step forward in our search for more efficient distribution, and that in many ways, and until something not now thought of appears, the grocery supermarket and the way it uses self-service will for quite a while be an important and dominant part of our retail landscape.

The development of self-service in this supermarket for food alone could hardly be called a retail revolution. Why this term can justifiably be used is because we see everywhere the grocery supermarket adding non-food departments covering a wide variety of package consumer goods and now reaching up into things such as various forms of apparel.

It is in the expansion into a wide variety of non-food merchandise that is now taking place in grocery supermarkets, that there is room for sensible doubt as to whether this is really a permanent new development and a revolution or whether it is a food store expansion during a period of boome after which there are strong possibilities of some departments falling over on their face.

There are some people in the food business and not the least intelligent or least successful, who believe that the food store is very soon headed for such a tough period of competition that their entire time is going to be occupied in holding their position in the food business.

The self-service idea which makes the customer do most of the work, at no cost to the store, but which also gives the customer ample time and opportunity for self selection, is a great invention in retailing. It relieves the store of the expense of personal selling for products which require no personal selling and it relieves the customer from a multiple of nuisances, particularly lost time in waiting to buy products which involve little money or which are primarily a utility and which are bought casually or as a replacement.

In certain non-food lines, particularly the low-priced mass produced utility toiletries, such as tooth paste or cigarettes, magazines and products in that particular catagory which are bought in routine shopping, self-service has without any question demonstrated its superior selling qualifications and in turn the grocery supermarket has proved that its convenient shopping position makes these products a logical part of their store.

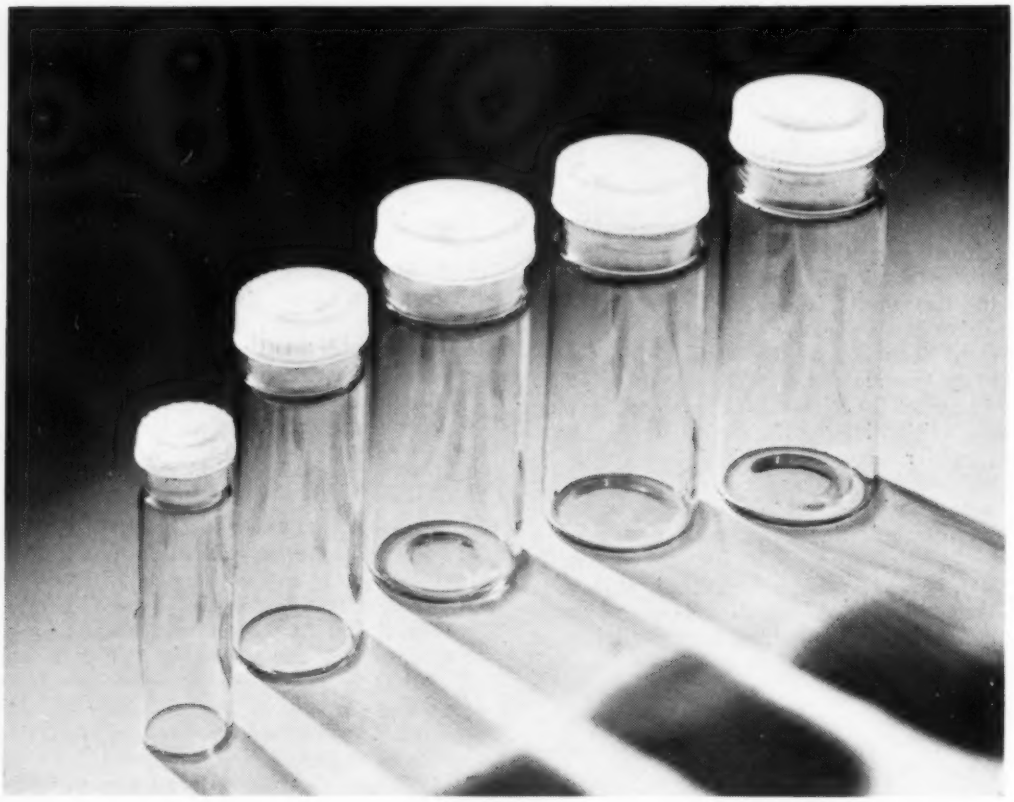
But a very good case can be made for the fact that self-service has already passed beyond its field of true usefulness and that self-service will soon be on the defensive in many catagories of merchandise which the manufacturers are now so enthusiastically packaging and developing for self-service. The reason for this statement is that as soon as self-service selling is applied beyond a basic field of low priced well known staples, it becomes a form of selling which might much better be termed "take it or leave it". It seems very possible that we are soon to enter an era of retail competition in which neither the manufacturer nor the retailer will dare to leave any kind of merchandise on a self-service counter if that merchandise is adapted in price or character to personal selling.

Another favorite of the retail revolution is the impulse or unplanned purchase. Far be it from us to minimize the importance of retail display, or availability of the product position-wise or of the vital importance, in selling, of the unplanned or impulse purchase.

We do think, however, that results in experiments with impulse sales, often astounding, have been accepted too much on their face value. For instance, the experiments in placing ice cream in a grocery supermarket in a self-service department store where impulse sales increased the sale of this ice cream 200 per cent. We do not believe for a moment that if every grocery store in the United States, put ice cream in some equally accessible place in their grocery stores, that over a period of six months the ice cream industry would experience a 200 per cent gain in consumption of ice cream in grocery stores.

At the same time, the impulse sale is very much a creature of the family budget at the particular time this impulse sale is made. Economists say, that we now have been for several years in a period of lush economy. If, or when, we get back to the period where the average family counts their pennies somewhat more

Surely Your Product Deserves The Best



The importance of the closure that protects pharmaceutical and biological products until they reach the ultimate user, can not be over estimated. The Plastic Assembled Products Company offers for your consideration these, the absolute finest in polythene vial closures. Our new thermo-plastic division is now in full production and is in a position to offer quick delivery in any quantity. Available in most standard sizes, and in all colors. These closures, we believe, are the finest to be had today. For full details and samples write — Thermo-Plastic Division, Plastic Assembled Products Co.

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carefully than at present, we wonder just what will happen to the impulse sale. We are sure it will be there, but not anywhere near so revolutionary as it seems to be now. We also feel sure that the balance of relative importance between the impulse sale in self-service and personal selling is going to undergo somewhat of a change in favor of personal selling.

One-stop shopping is another sonorous word that is a darling of the Rah-Rah boys of the retail revolution. To hear them talk, you forget completely that the department store for two generations has been aiming exactly at that bulls eye and has been doing a better job at it than the grocery store market in non-food items. The best the department store has ever done, according to surveys, is to pin the average woman down to shopping in three department stores, not counting numerous specialty and neighborhood stores of all kinds. Whatever gave these people the idea that the American woman has lost her natural instinct and pleasure in shopping is very hard to define, other than a series of statistics such as the number of women employed, a figure which can be read in many different ways. We prophesy that the word "one-stop shopping" will before long be dropped in the ash can. The suburban shopping center, the branch suburb store, and what has happened in the suburbs has acquired somewhat an air of mysticism in many discussions of the retail revolution. Some of these people are not content with a simple statistical fact that this country has gained a population of over twenty million people in less than ten years and that the farm area and villages had been loosing population in the great mass movement for factory employment and that most American cities became so over-populated that great hordes of people were simply pushed out into the suburbs. Why can't we be specific with a simple fact that retailing, as it has always done, is simply following the tide of population changes. As for traffic and congestion, which is certainly a bad problem in shopping today, we prophesize that as soon as it really begins to hurt the big business interest in the major cities, which include the leading merchants, real estate men and others, that then city administrators will really tackle traffic and congestion and come up with the answer. While there may be a retail revolution going on we, however, don't think it is anything like as revolutionary as a large part of the clamor would have us believe.

Limitations on the Way

It is not at all a unanimous opinion that the supermarket food stores are going to keep spreading out into non-food lines until the food department becomes an incidental part of the business. Just recently, in two different directions, one voluntary and the other non-voluntary, the idea of loosing the primary food identity of the supermarket has been abruptly vetoed. The President of National Tea vetoed expansion into further non-food items in very strong language in a recent speech. Mr. McNamara, the President of National Tea, believes that there are plenty of tough problems in the food business without looking for additional ones in other fields. These stores are carrying a few drug and cosmetic items, but it was made clear that no further expansion is planned.

The Mid-Island Shopping Plaza, is a new 92-store $25 million shopping center to be built at Hicksville, Long Island. This shopping center is establishing "a firm policy against the sale in food stores of hosiery, dry goods, and non-food items other than those commonly associated with today's supermarkets". According to the company controlling this shopping center, they see no reason for supermarkets to offer non-food lines in a regional center like Mid-Island which will provide parking for 5,700 cars and contain two department stores.

Before reaching this decision, the Real Estate Company studied a recent survey that showed that 21,600 large supermarkets do 12 per cent of their annual gross volume in non-food lines.

A very much more potent force than Building and Real Estate interests or Presidents of food firms will decide what will be the limitation of non-food items in those food stores which will maintain their competitive position in food merchandising.

Perfumed Autos

The Del Roy Products Company of Toledo, Ohio believes that perfume will increase the pleasure people take in owning an automobile. They have just come up with a kit which will be sold to auto-wash establishments, garages and service stations. This kit includes a spray gun, a spray solution which will remove any car odor and kill all bacteria, and twelve different perfume odors to be sprayed in the car after the first application of deodorizing. This kit sells for $48.00. The spray job is said to take two minutes, cost about $.69 and hold the perfume odor from twenty-four to thirty-six hours.

Let's Go Our Own Way

According to reports, a Chicago drug chain is making a counter-attack on food stores by selling bread and also including some breakfast and snack items. Bread is said to be selling remarkably well in these drug stores. It is awfully hard to be impressed with this kind of drug store merchandising. The drug store today has literally hundreds of items, particularly many branded, packaged products, which will never be suitable or adaptable to supermarket merchandising. These products command an excellent margin of profit and could certainly stand a great deal of retail selling. We think the drug stores which are really going to prosper in the future are the stores which will feature and build up a reputation around products that do not belong in a grocery store, which cannot be handled effectively without personal selling, and which belong in the kind of sales environment which a clean, attractively planned drug store can offer.

An attractive A.C.L. label and Empress closure transform Duraglas stock bottle No. A-4338 into a handsome sales package.

MAKE-UP makes the difference!..

Spruce up your package with A.C.L.*—the durable self-selling label

Duraglas A.C.L. labels are fused right into the glass to become part of the container. They save the cost of paper, labels and glue . . . eliminate labeling machines which increases the work space in your plant. Decide now to investigate how you can have the modern sales package your line deserves.

You can select from hundreds of unusual and economical Duraglas stock-mold containers the ones that are exactly right for your product. Then our packaging specialists, originators of the A.C.L. process, will design a label that makes your package stand out on any retail shelf or counter.

*Applied Color Lettering

These Duraglas oblong stock bottles come in ½, ¾, 1, 2, 3, 4, 6, 8 and 12-ounce sizes.

Duraglas TRADE MARK REG. U.S. PAT. OFF. packages are protectors of quality

OWENS-ILLINOIS GLASS COMPANY • TOLEDO 1, OHIO • BRANCHES IN PRINCIPAL CITIES

Doin's ...

George A. Breon & Co. has added two hormone products to its line of injectibles, Mertestate and Estrone-Progesterone. The former, a testicular hormone solution, has a marked and sustained androgenic effect and is primarily used for male sex hormone deficiencies. The latter is indicated in amenorrhea, habitual abortion, and menorrhagia. Both preparations are supplied in aqueous suspensions for intramuscular injection.

Winthrop-Stearns has made Procaine Penicillin G (aqueous suspension) available in two new dosages, one of 600,000 units and the second containing 1,000,000. It supplements the extensive line of penicillin preparations previously introduced.

Wyeth is marketing Kao-Strep, a new product for the treatment of calf scours and other intestinal diseases in farm animals. The product may also be used as a preventive during the period in which the disease usually appears.

Burroughs Wellcome & Co. has prepared Codempiral, a yellow and white capsule, containing a combination of Empiral and Codeine Phosphate. The product is for the relief of pain associated with anxiety and tension.

Upjohn has prepared Biosulfa, a new veterinary combination of penicillin with three sulfonamide drugs in tablet form suited for treating many ailments of dogs, cats and other small animals. Since the new combination can be swallowed readily instead of requiring injection, it offers much greater convenience for all concerned —the sick animal, its owner, and the veterinarian

Tussy Cosmetiques will next month introduce Finishing Touch, a liquid foundation, with a new and improved formula, and its latest shade, Custom Blend, together with the new fashion-right shade of Midnight Face Powder, Medium Tone.

Schering has announced the preparation of Prantal Methylsulfate Repeat Action Tablets for peptic ulcers and other conditions associated with hyperacidity or hypermotility of the stomach.

Winthrop - Stearns has introduced Pontocaine in a water-miscle cream for use in optical anesthesia, supplementing other forms of the compound already available. It is recommended for use in burns, scalds, ulcers, operative wounds, hemorrhoids, and similar conditions.

Wyeth has provided Sul - Pondets, pleasantly flavored, candy-like troches for oral use. Each troche contains 20,000 units of penicillin, 50 units of bacitracin, 2 grains of sulfadiazine and 3 mg. of benzocaine. They are valuable in certain oral infections and as a prophylactic or therapeutic adjunct to basic dental procedures.

Pfizer has prepared crystalets containing both vitamin A acetate and vitamin D which offer the same high stability characteristics as the company's Crystalets containing only crystalline vitamin A. These Crystalets can be tableted or incorporated into capsules and dry mixtures and are also suitable for fortification of dry food products and beverage powders.

The Upjohn Company has released three new products: Gelfoam Powder, a finely-powdered, specially treated gelatin for oral use as an aid in attaining hemostasis in gastro-duodenal hemorrhage; Myciguent Cream, an emulsion-type ointment containing neomycin sulfate, effective in treating skin infections such as impetigo, barber's itch and boils; and Neosone Ophthalmic Ointment, a well - Tolerated ophthalmic ointment containing Cortisone Acetate and neo-

SPRA-TAINER Does It Again!

ANOTHER FAMOUS PRODUCT IS NOW *PRESSURE-PACKED* IN WORLD'S LEADING PROPULSION CAN . . .

Cleans Upholstery! Cleans Rugs!

CARBONA Instant-Foam LATHER now chases spots and stains with new-found convenience. It's pressure packed in *SPRA-TAINER* for speedier, more effective action. Touch the top and it s-p-r-a-y-s!

As happens with any original and worth-while invention, *SPRA-TAINER* has been imitated. But it has never been matched by any other propulsion can. Its exclusive Modern Design and "No Side Seam-No Top Seam" construction are engineered by equipment that is designed, built and patented by Crown for the specific purpose of creating the finest possible pressurized containers. This "attention to perfection" is evident in *all* Crown Cans serving many and varied industries.

One of America's Largest Can Manufacturers

CROWN CAN
Division of
CROWN CORK & SEAL COMPANY

PLANTS AT PHILADELPHIA, CHICAGO, ORLANDO • BRANCH OFFICES: NEW YORK, BALTIMORE, PITTSBURGH, ST. LOUIS

Doin's ... (CONTINUED)

mycin sulfate, which relieves the inflammation caused by allergy, trauma and infection, and which attacks the organisms responsible for infection.

Benya Drug Co., Wernersville, Penna., is marketing Gericin, a therapeutic geriatric formula in tablet form containing 27 vitamins, minerals and lipotropic factors. The nutritional factors are present in a scientifically balanced formula designed for people over 35, convalescents, and persons suffering from nutritional anemia.

Morton Salt Co. is market-testing for national distribution Morton Salt and Chlorophyll Toothpaste. The formula "combines germ-killing salt with odor-killing chlorophyll for all-around mouth protection." The tooth paste is packaged in a special internally-lined Sheffaloy Tube manufactured by the Sheffield Tube Corp.

Helena Rubinstein has created Silk-Tone Liquid Rouge, which blends perfectly with the natural skin tones, leaving no trace of color beginning or ending, and giving a soft, flattering radiance to the complexion. The Liquid Rouge may be applied either on top of a foundation, or over a face powder.

Organon has introduced a new type cough preparation, Tosanon, which offers a 4-point attack on cough. It contains mephenesin, dihydrocodeinone bitartrate, potassium citrate and pyrilamine maleate for mild local anesthetic action, cough reflex depressant action, non-irritating expectorant action, and effective antihistaminic action, respectively.

Harrower is now distributing Mucotin in liquid form as Mucotin Liquid, offering a choice of either tablet or liquid medication. Principally indicated in peptic ulcer therapy, it is also useful in hyperacidity, gastritis, and for relief or prevention of nausea in conjunction with antibiotic administration.

Hynson, Westcott & Dunning, Inc., Baltimore, recently placed two new products on the market: Cobroxin, a potent substance derived from Cobra Venom, which is highly effective in the treatment of intractable pain; and Lactinex Tablets, for the treatment of gastro-intestinal disturbances, particularly diarrhea, including those resulting from antibiotic therapy.

Armour Laboratories has prepared Thyrar, a whole-gland thyroid extract for treating those conditions in which ordinary thyroid hormone is useful. The advantages of Thyrar are said to be: a more uniform product, less inert material, whole gland efficacy, tasteless, chemically assayed and biologically tested, and standardized equivalent to Thyroid U.S.P., requiring no dosage change.

Squibb recently prepared Diagnex (Squibb Quinine Carbacrylic Resin), an effective, accurate method for detecting gastric anacidity in cases of suspected stomach cancer, zernicious anemia or gastric polyps, without submitting the patient to the discomfort of intubation. It is an ion exchange resin in the form of an insoluble powder.

Parke, Davis & Co. has a new vitamin-mineral supplement, Natabec, especially adapted to aid in achieving optimum nutrition during pregnancy and lactation. One Natabec Kapseal supplies calcium, phosphorus, vitamins B_{12}, B_6, folic acid, nicotinamide, vitamin K, and rutin, with the minimum daily requirements or more of iron and of vitamins A, B_1, B_2, C and D.

Lucas Products Corp., Toledo, Ohio, is now distributing Hx, a new antiseptic and germicide concentrate which has many every-day uses as a disinfectant and deodorant.

New Nation-wide Du Pont
3 OUT OF 4 DEALERS

HOW THE SURVEY WAS CONDUCTED. An independent, nationally known research organization conducted the newest Du Pont Survey of the market for aerosol products. Retail dealers were interviewed in six major classifications of trade in 60 representative cities.

The study offers opportunity to review many basic points in comparison with findings of earlier surveys. To provide reliable answers, interviewers talked with as many people (owners, managers, assistants, and clerks) as were necessary to obtain a satisfactory report. This proved particularly important in connection with department stores which frequently employ buyers, clerks and others best qualified to discuss specific items.

The survey itself was conducted during the month of July 1952, and the data obtained has since been assembled and condensed. This sixth annual Du Pont Survey "Digest" of the market for aerosol products is the only report of its kind.

WHERE THE SURVEY WAS MADE. *The 60 cities listed below represent a cross-section of the market for aerosol-packed products throughout the country. It will be noted that they include large metropolitan cities, medium-size centers and smaller shopping areas.*

Albuquerque, N. Mex.	Dallas, Texas	Memphis, Tenn.	Pittsburgh, Pa.	Shreveport, La.
Amarillo, Texas	Denver, Colo.	Miami, Fla.	Portland, Me.	South Bend, Ind.
Asheville, N. C.	Detroit, Mich.	Milwaukee, Wis.	Portland, Oregon	Spokane, Wash.
Atlanta, Ga.	Fresno, Calif.	Minneapolis, Minn.	Providence, R. I.	Springfield, Mass.
Baltimore, Md.	Grand Rapids, Mich.	Montgomery, Ala.	Rochester, N. Y.	Springfield, Mo.
Birmingham, Ala.	Houston, Texas	Newark, N. J.	St. Louis, Mo.	Syracuse, N. Y.
Boston, Mass.	Indianapolis, Ind.	New Haven, Conn.	Sacramento, Calif.	Topeka, Kansas
Chattanooga, Tenn.	Kansas City, Mo.	New Orleans, La.	Salt Lake City, Utah	Tulsa, Okla.
Chicago, Ill.	Lexington, Ky.	New York, N. Y.	San Francisco, Calif.	Utica, N. Y.
Cincinnati, Ohio	Little Rock, Ark.	Omaha, Nebraska	Savannah, Ga.	Washington, D. C.
Columbia, S. C.	Los Angeles, Calif.	Peoria, Ill.	Scranton, Pa.	Wheeling, West Va.
Columbus, Ohio	Madison, Wis.	Philadelphia, Pa.	Seattle, Wash.	York, Pa.

DU PONT
REG. U. S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

"FREON" SAFE

Survey Reveals NOW STOCK AEROSOLS

Important New Facts About Best Markets

Results of the sixth annual survey conducted by the "Kinetic" Chemicals Division of the Du Pont Company show that 3 out of 4 retail dealers interviewed from coast to coast now stock one or more aerosol products. The report contains a fund of information about this rapidly growing industry.

PURPOSE OF THE SURVEY. The Du Pont aerosol market surveys are designed as a service to the aerosol industry. They provide a complete picture of expanding markets for pressure-packed products of many kinds. Significant changes are shown in the distribution of aerosols. The study also analyzes dealer opinions and reveals important trends.

Whereas, only a few years ago, aerosol products were limited in number and uses, today there are hundreds of these products. These are steadily gaining in popularity, and an increasing percentage of retail dealers (now 82% on weighted basis) are stocking aerosols. Because of this rapid advance, a more extensive survey became necessary to keep pace with the progress of the industry as a whole. It is now proposed to conduct a dealer survey one year and a consumer study the next, alternating each year between the two. The current report, therefore, covers the field of retail sales outlets.

GREATLY EXPANDED STUDY. The new study embraces a total of 2,233 personal interviews conducted with qualified respondents in major retail outlets throughout the country. The selected retailers form a representative cross-section of retailers in six major classifications of trade. Approximately the same number of outlets were visited in each group.

The expanded study included sixty cities listed on the page opposite. They were carefully chosen to give coverage of various city-size groups.

IMPORTANCE OF STORE SIZE. An innovation of the current study is the classification of outlets as "large," "medium" and "small". . . based upon evaluation of individual stores in comparison with others of the same type in the same market area. The breakdown offers a better indication of marketing activities in the different store sizes and shows, for instance, that a greater number of large stores than of small stores carry aerosols.

DEALER REACTIONS FAVORABLE. Analysis of the opinion of retail dealers who stock aerosol products in all divisions of trade again shows that this comparatively new method of dispensing is steadily gaining importance. Increases in distribution of aerosols show up in all classifications. For example, insecticidal aerosol distribution through drug stores has reached 98% . . . showing proved acceptance.

SURVEY "DIGEST" SENT ON REQUEST. These are just a few of over 100 questions about aerosol products reviewed and answered in the current "Digest" of the Du Pont Survey. It's a comprehensive report and a copy of it will gladly be sent upon request.

In addition, if you want specific advice concerning the design, manufacture or marketing of one or more aerosol products, technical help may readily be obtained from the "Kinetic" Chemicals Division of the Du Pont Company . . . manufacturers of "Freon" propellents used in almost all pressure-packed products now available.

IMPORTANCE OF "FREON" PROPELLENTS. "Freon" propellents are widely used in the production of aerosols because, first of all, they are entirely safe. They are nonflammable . . . nonexplosive . . . virtually nontoxic . . . and their chemical make-up is such that they are highly satisfactory for all types of aerosols.

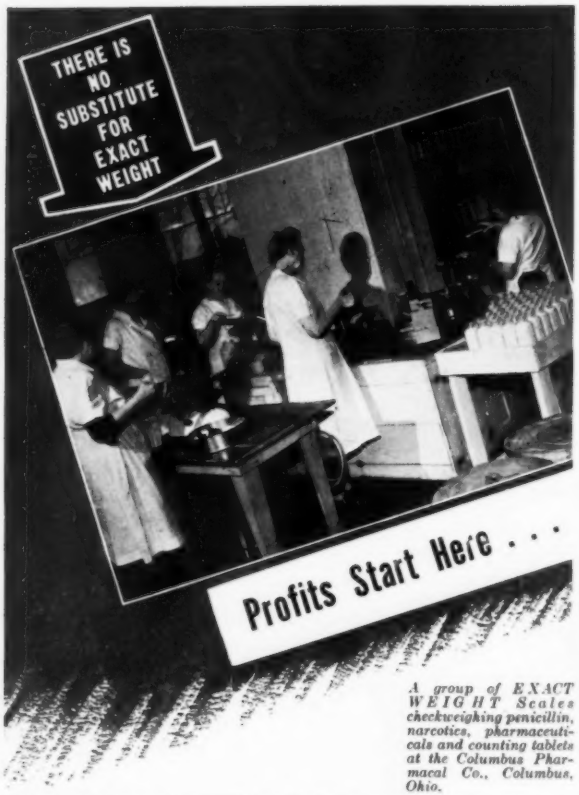
Give thought—now—to the possibility of pressure-packaging one or more of your own products. As the Du Pont Survey shows . . . the popularity of this method of dispensing is proving a big booster of sales. Write for your copy of the Survey "Digest" today. No obligation, of course. E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Div., Wilmington 98, Delaware.

PROPELLENTS

KINETIC

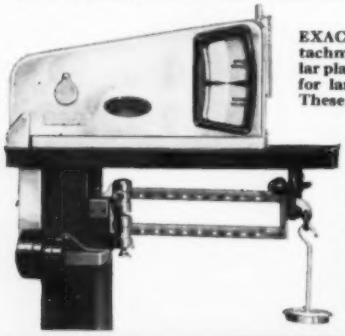
REG. U.S. PAT. OFF.

"FREON" is Du Pont's registered trade-mark for its fluorinated hydrocarbon propellents.



A group of EXACT WEIGHT Scales checkweighing penicillin, narcotics, pharmaceuticals and counting tablets at the Columbus Pharmacal Co., Columbus, Ohio.

When drugs and cosmetics go into consumer packages the all important question is how much is actually in the package . . . each package. Why handicap an otherwise efficient business from the very start. Remember profits start at the packaging operation. The best cost control measure is check-weighing whether the task is manually done, semi-automatic or fully automatic. High speed EXACT WEIGHT Scales are in the answer. Wherever drugs and cosmetics are packaged you will find these famous scales for more EXCAT WEIGHT Scales are in use today in packaging operations like the above than any other scales of their type in the world. They are the leaders in the industry. Write for details for your plant.



EXACT WEIGHT Indicating Attachment Model No. 4016 for regular platform scales. Ideal equipment for large compounding operations. These attachments substitute visible weight control for guesswork beam balancing, save in overweight, eliminate underweight, materially speed up your work. Actually this simple devise transforms an ordinary scale into a precision model at low cost. Users report savings in time and product from two to ten times the cost of the attachment. Fits any heavy duty scale regardless of capacity.

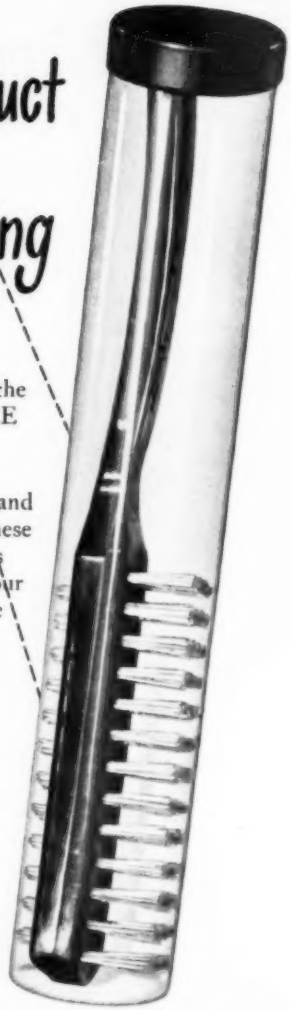
EXACT WEIGHT SCALES

BETTER QUALITY CONTROL
BETTER COST CONTROL

THE EXACT WEIGHT SCALE COMPANY
935 West Fifth Avenue, Columbus 8, Ohio
2920 Bloor St., W. Toronto 18, Canada

LOOK, MISTER!

Your Product is Showing



Seeing is believing in merchandising today—and the package that lets buyers SEE your product is your best "silent" salesman.

That's why Lusteroid vials and tubes sell by the million. These distinctive plastic containers display as well as protect your product during the complete merchandising cycle.

Get the story on Lusteroid and SEE for yourself how much better you can do with Lusteroid's light weight, strength, color, printability, and savings. Sizes from ¼" to 1¼" in diameter and lengths up to 6". Cork, slip-on, and screw-cap closures.

Write for details and samples.

LUSTEROID
Vials and Tubes

LUSTEROID *Container Company, Inc.*

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Photo courtesy Parfums Ciro, Inc., New York

Custom Protection for cosmetics—the touch of elegance that adds glamorous new sales appeal

The accent is on grace, charm and rich, clean beauty when cosmetics are packaged in Kimberly-Clark Interior Packaging—KIMPAK*. Yet these parfums by Ciro show too how this amazingly versatile cellulose wadding provides real shipping protection for the most delicate glass and finely finished surfaces.

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News...

Warner-Chilcott Labs. formed

Elmer H. Bobst, president of Warner-Hudnut, has announced the merger of William R. Warner and Chilcott Laboratories, both pharmaceutical divisions of Warner-Hudnut. The new division, Warner-Chilcott Laboratories, will combine the research, production and sales facilities of both firms, and will market all ethical drugs now being produced by each company. The merger will become effective early this year.

ELMER H. BOBST

The total domestic and foreign sales of both Warner and Chilcott pharmaceutical products are expected to exceed $30 million in 1953.

The expanded research organization of Warner-Chilcott Research Laboratories will be headed by Dr. George H. Mangun, director of the Warner Institute for Therapeutic Research. Ulrich V. Solmssen, administrative director of research at Warner, will continue in that post with the new company. Dr. Walter H. Hoskins, formerly research director at Chilcott, has become director of clinical investigation of the division.

Charles T. Silloway, vice-president of Warner-Hudnut, will be responsible for sales and administration in Warner-Chilcott.

A general research committee will include Mr. Bobst, Robert J. Davis, executive vice-president of Warner-Hudnut, Mr. Silloway, and key members of the research division.

The company has been holding two-week training conferences to acquaint the combined sales staff of Warner-Chilcott with all the products of both divisions. The new sales force, totaling 125 men, will be under the direction of Edmund R. Beckwith, Jr., who has been sales manager for Chilcott Laboratories.

The merger will expand the foreign market for former Chilcott products, since the new organization will have its products available for sale in 96 countries and will produce them in 16 countries through manufacturing laboratories wholly or partially owned by Warner-Hudnut. Domestic research and production activities will be centered in New York, St. Louis and at the present Chilcott plant in Morris Plains, N. J.

Manufacturing will be under the supervision of L. A. Flagler, vice-president of Warner-Hudnut, and E. F. Janes, assistant vice-president and director of operations at Morris Plains.

CHARLES T. SILLOWAY

Building construction is now under way at Morris Plains which will more than double present facilities. The combined organization will have a total employment of about 3,000 men and women in various phases of pharmaceutical operations, both here and abroad.

Mark 25th Year with Givaudan

Six employees of Givaudan-Delawanna, Inc., Michael German, Wilhelmine Kramer, Michael Lazorchak, Meewis Mol, Herbert L. Shaftoe and Albert Szeredy, were presented with gold Swiss watches at the company's annual Christmas party at the Swiss Chalet, Rochelle Park, N. J. on December 20. The occasion was the completion of 25 years of service with the company on the part of the veteran employees. Twenty-nine had previously been honored. The party was attended by 340 members of the Givaudan organization. Ernest R. Durrer, executive vice-president; Dr. Max Luthy, vice-president and plant manager; and Harold F. Duffy, treasurer, addressed the gathering.

Bill Baker Fully Recovered

William B. Baker, of Armour Laboratories, Chicago, who was hospitalized in New York while attending the meeting of the American Pharmaceutical Manufacturers Association in December, has returned home as good as new. It was soon determined that his difficulty was of a minor nature requiring about six weeks of hospitalization to effect a complete elimination of the trouble and its cause.

Bill called us to tell this prognostication shortly after he entered the hospital. Then a few days before he left he called us again to assure us that this had been confirmed.

DR. GEORGE H. MANGUN

New Officers for Foragers

George Zinnell, Standard Laboratories, was elected president of the Foragers of America for the following year, during its annual meeting at Toots Shor on December 17. It was one of the largest attended meetings in the society's 55-year history. Additional officers for the 1953 to 1954 period are: Victor Fredholm, Tussy Cosmetics, as vice-president; and Nino Bazzi, Ohio Truss Co., as secretary treasurer. The following were elected to the Board of Governors: Chester Briggs, Laco Products; Charles B. Darcey, Houbigant; Charles Popkin, Lentheric; Edward R. Welsh, Dorothy Gray; Thomas Gladding, Houbigant; and E. R. Commons, Shulton.

Fisher Appointed by Cont. Can

Raymond G. Fisher has been appointed director of economic research by Continental Can Co., according to Peter P. Wojtul, general manager of sales. His responsibilities will include supervision of the commercial research and sales analysis activities of the company.

Carr-Lowrey Opal Jars meet the packaging requirements of a wide variety of products. They can be supplied either plain or with fired-on ceramic decorations.

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Wins Wellcome Prize

Colonel Ryle A. Radke, MC, USA, was awarded the Wellcome Prize in November at the 59th annual meeting of the Association of Military Surgeons of the United States, held in the Statler Hotel, Washington, D. C. Howard B. Fonda, senior vice-president of Burroughs Wellcome & Co. (U.S.A.) Inc., presented the Prize on behalf of the trustees of the will of the late Sir Henry Wellcome.

Colonel Radke received the Award on the basis of his winning essay, "The Military Significance of Amoebiases."

Howard B. Fonda, senior vice-president of Burroughs Wellcome, presenting Wellcome Prize to Col. Ryle A. Radke, MC, USA, at 59th annual meeting of Association of Military Surgeons of U.S. in Washington, D.C. Seated, right to left, Harry S. Truman, President of United States; Major Gen. Harry G. Armstrong, Surgeon general of USAF, President of Association; Mr. Fonda; Major Gen. George E. Armstrong, surgeon general of U.S. Army; Col. Radke; and Rear-Admiral Leonard A. Scheele, surgeon General, USPHS.

A. Ph. A. Elections

The following officers of the American Pharmaceutical Association were elected last month and will be installed at the annual convention in Salt Lake City during August, 1953: F. Royce Franzoni, member of the board of Pharmacy, District of Columbia, president; John A. MacCartney, director of trade relations, Parke, Davis & Co., as first vice-president; Joseph B. Sprowls, Dean of the College of Pharmacy of Temple University, second vice-president; and Don E. Francke, chief pharmacist, University of Michigan Hospital, Roy L. Sanford, pharmacist, and Robert L. Swain, editor, *Drug Topics* and *Drug Trade News*, as members of the Council for a period of three years.

The present officers of the Association who will continue as such until the August convention, are R. Q. Richards, president; Tom D. Rowe, first vice-president; and Charles F. Lanwermeyer, second vice-president.

Horner Becomes Export Manager

Lawrence E. Horner has been named export manager of two Vick Chemical Co. subsidiaries, the Alfred D. McKelvy Co., and Prince Matchabelli, Inc., according to L. F. Bonham and Owen Stoner, presidents, respectively.

LAWRENCE E. HORNER

Yonkman, Ciba Research V. P.

Dr. Frederick F. Yonkman, authority on the relation between the sympathetic nervous system and high blood pressure, has been elected vice-president in charge of research of Ciba Pharmaceutical Products, Inc., according to T. F. Davies Haines, president. He succeeds Dr. Ernst A. Oppenheimer who retired January 1 after nine years in the post, but who will continue as a consultant.

Dr. Yonkman has been director of research under Dr. Oppenheimer since 1945.

Camp, V.P. of Lambert Co.

Frank E. Camp has been elected a vice-president of the Lambert Co., according to Edward T. T. Williams, president. He will continue to direct the sales activities of the company.

Hensley Named Toni V.P.

Stuart K. Hensley has become vice-president in charge of sales of the Toni division of the Gillette Co., according to R. N. W. Harris, president. He has been associated with the Toni sales department since 1946 when he joined the company as a sales representative in Florida.

STUART K. HENSLEY

Parke-Davis Honors 320 Employees

Over 300 employees, who have served Parke, Davis & Co. 25 years or more, were honored last month at a banquet in the Veterans' Memorial Building, Detroit. Each of the employees received a gold watch from President Harry J. Loynd and Executive Vice-president Homer C. Fritsch. Three of them had been with the firm 50 years or more.

Program chairman for the event was Dr. Frank O. Taylor, formerly chief chemist and now research consultant, who joined the company in 1902. John J. Hannan and George S. Sherman joined the company in 1899 and 1901, respectively.

Many family groups were honored, among them were three brothers, Arthur C., Victor, and George Maes, and their uncle, Leonard L. Maes. Another family was Angelo C., Ferdinand, and John C. Barbaglia.

Mr. Fritsch singled out for special tribute the 23 men and women who have been associated with Parke-Davis for 40 years or more.

Thomas C. Anderson, director of production and engineering, discussed the service award program, while dinner music was provided by the Parke-Davis orchestra and the Clef Dwellers barbershop quartet.

Ord, V.P., Canadian Chemical

Robinson Ord has been named vice-president of Canadian Chemical & Cellulose Co., Ltd., and vice-president and general manager of Canadian Chemical Co., Ltd., according to Maxwell W. Mackenzie, executive vice-president of the two companies. He has been general manager of sales for the organic chemicals division of Monsanto Chemical Co. since 1945.

Mr. Ord's headquarters will be in Montreal.

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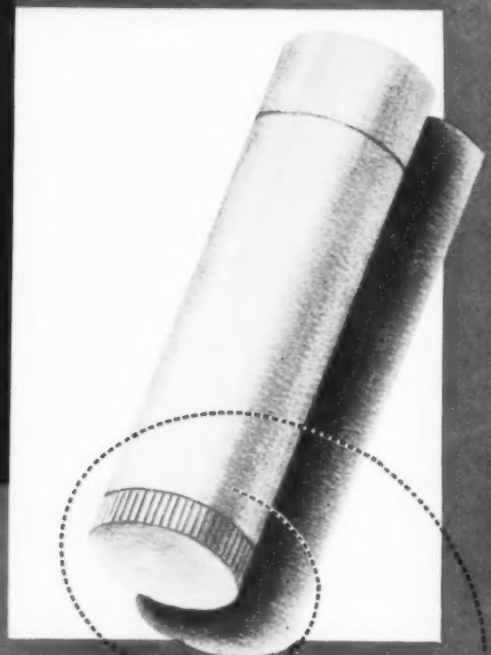

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*PAT PEND

Fritzsche Sales Convention

Fritzsche Brothers concluded one of its most successful sales conventions in recent years on December 13 with the grand finale of the annual dinner-dance at the Hotel New Yorker.

President F. H. Leonhardt opened the sales convention four days earlier by bidding a cordial welcome to all those present. He was followed by vice-presidents John H. Montgomery, H. P. Wesemann and Joseph A. Huisking, who set the tempo of the meeting, and by treasurer John L. Cassullo and assistant secretary D. A. Neary. Flavor and perfume department discussions and demonstrations were conducted on separate days by flavor specialists Robert Krone, Ray Thompson and Dr. E. H. Hamann in charge of flavor research, and by the perfume division's Kenneth Tracy, Ernest Lawson, George Ammersbach and Gus Schwindemann.

Other highlights included a trip to the company's expanding manufacturing operations at its Clifton factory, and a lecture-preview by Dr. Ernest Guenther of his colored motion-picture recordings taken during his recent six-months' trip to Europe and Africa.

A keynote of optimism and cooperation voiced on the first day of the meetings by the week's moderator, vice-president Huisking, dominated the entire proceedings.

Group of Fritzsche Brothers representatives, who attended annual sales conference, with members of New York staff, on tour of inspection of company's Clifton, N. J. plant. Factory engineers explained the operating features of the various units of equipment.

Appointed by Amer. Cholesterol

Dr. Kalmen Motiuk has been appointed chief organic chemist in the research laboratories of the American Cholesterol Products, Inc. He joined the company last year, and previous to that, had been research chemist at E. F. Drew & Co.

James Applegate, Jr. has become analytical chemist in the research laboratories.

Rooney, Bristol-Myers Consultant

Harry B. Rooney, western division sales manager of Bristol-Myers Products division at San Francisco for 14 years, has been appointed West Coast consultant, according to Robert B. Brown, president.

Bruce W. Mansfield will succeed Mr. Rooney in his former post, with headquarters at San Francisco.

Irving Newfield, assistant sales manager of the eastern division, has been named sales manager of that division, succeeding Mr. Mansfield.

Packaging Materials Comm. Changes

Owing to the rapid growth of the Printed Packaging Materials Committee of the Packaging Institute under the leadership of E. H. Balkema, Colgate-Palmolive-Peet Co., a new division has been formed in the technical committee organization, to be known as the Package Printing division. Mr. Balkema was named division chairman by the technical operations committee at its December meeting.

ADACIOM Elections

Officers and directors were elected by the Associated Drug and Chemical Industries of Missouri, Inc. last month at its 14th annual election luncheon meeting in the Hotel Lennox, St. Louis.

George C. Irwin, Irwin-Willert Co., was elected president; Charles S. Fox, Aluminum Co. of America, first vice-president; Gerald F. Pauley, Monsanto Chemical Co., second vice-president; Joseph W. Wise, Grove Laboratories, third vice-president; John A. Mueller, S. Pfeiffer Manufacturing Co., secretary; and J. Louis Lanz, manufacturer's consultant, treasurer. The following members were elected to the executive committee: Richard W. Hayes, Merck & Co.; Arthur O. Hoeller, James Varley & Sons; E. Ted Mann, the Dow Chemical Co.; James E. Montgomery, U. S. Industrial Chemicals; L. G. Peck, Peck's Products Co.; and A. L. Sacks, the Puro Co.

These officers and members of the executive committee are automatically named to the board of directors. In addition, the following past presidents of the organization were also named to the board: Franc A. Barada, Fritzsche Brothers; Dr. J. S. Brewer, Sayman Products Co.; Charles E. Caspari, Jr. and Othway W. Rash, Monsanto Chemical Co.; Charles W. Godefroy, Godefroy Manufacturing Co.; Morton Meyer, Thompson - Hayward Chemical Co.; Glenn H. O'Neal, the Dow Chemical Co.; Jack C. Varley, James Varley & Sons, Inc.; and Marvin Yates, Marvin Yates Co.

These new officers were introduced at the annual Christmas Party which was held in the Starlight Roof of Hotel Chase.

DR. KALMEN MOTIUK

JAMES APPLEGATE, JR.

SAVERY F. CONEYBEAR

Coneybear in Colgate Exec. Post

Savery F. Coneybear, formerly vice-president of the Evans Research and Development Corp., has joined Colgate-Palmolive-Peet Co. as associate director of its research and development department.

Rice Heads Med. Directors Ass'n

Dr. Justus B. Rice, director of medical research, Winthrop-Stearns Inc., has been elected president for one year, of the Association of Medical Directors, a group comprising heads of the medical departments of about 40 U. S. pharmaceutical manufacturers.

Dr. Elmer Severinghaus, medical director of Hoffmann-La Roche, was named vice-president, and Dr. Norman Heminway, Schering Corp., was re-elected secretary-treasurer.

Davis Leaves Ansbacher-Siegle

Peter E. Davis, sales specialist in color pigments, has resigned as vice-president and general manager of the Ansbacher-Siegle Corp. After a brief vacation he plans either to become associated with another color manufacturer or set up his own jobber organization to distribute pigment colors and related chemical products, as well as equipment and machinery.

Changes in Baker House Magazine

J. T. Baker Chemical Co. made several important format changes last month in its quarterly technical journal, the *Chemist-Analyst*, one of the nation's oldest, continuously published external house magazines in the field of chemistry. The journal appeared with a new cover and major changes in typography and layout.

First mailed in 1911 to 860 people, the 28-page publication is now received by more than 40,000 individuals, firms and institutions in more than 60 countries.

RENA PASQUALINI

Miss Pasqualini Named by Plax

Rena Pasqualini has been appointed administrative assistant in the sales department of Plax Corp., according to Denton Anderson, general sales manager.

Buchanan Named Dept. Manager

Dr. Ben F. Buchanan has been appointed manager of the pharmaceutical department of the Amino Products division of International Minerals & Chemical Corp., according to J. R. T. Bishop, vice-president in charge of the division. One of his major jobs will be the development of bulk medicinal chemicals for sale to the pharmaceutical manufacturing industry.

Jarecki, Supervisor for Schering

Chester A. Jarecki has been appointed district supervisor of the West Central district of the central division for Schering Corp., according to Herman W. Leitzow, domestic sales manager. He will maintain headquarters in Chicago.

Chem. & Allied Ind. Elections

Richard M. Yale of S. B. Penick & Co. has been elected president of the Chemical and Allied Industries Association of Michigan for the year 1953. Stanley T. Olds, Magnus, Mabee & Reynard, was named vice-president; Robert F. Watt, Western Solvents & Chemical Co., secretary; and M. Lorne Morrison, Gelatin Products division, R. P. Scherer Corp., treasurer.

Claire Brissette, Parke, Davis & Co.; Glen Hicks, Monsanto Chemical Co.; and Bruno Gheradini, J. T. Baker Chemical Co., were elected to the executive committee.

They were officially inducted into office at the annual Christmas party on December 20 at the Sheraton-Cadillac Hotel.

CIBS Officers Installed

Robert Armstrong, Goldschmidt Chemical Corp., was installed as president of the Cosmetic Industry Buyers and Suppliers during the annual Christmas cocktail party at the Park Lane Hotel on December 13. Other officers installed at the same time include: William J. Fairhurst, Fleuroma Inc., as first vice-president; Richard A. Malmstrom, N. I. Malmstrom & Co., second vice-president; John Duncan, Hazel-Atlas Glass Co., treasurer; Donald Lavelle, Aromatic Products, Inc., recording secretary; and Ralph C. Zehner, Lentheric, as corresponding secretary.

Robert Williams, Avon Products; Harold N. Anderson, H. Kohnstamm & Co.; and Dave Warner, Duveen Soap Co., became directors.

Dr. A. J. Barnard Jr., left, editor of ***Chemist-Analyst***, discussing publication's new format with Ralph A. Clark, vice-president of J. T. Baker Chemical Co. The Baker Quarterly journal has new cover and has undergone major changes in typography and layout.

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Besides the more or less routine tests, such as melting and softening point; application, correctness of shade, sheen, color distribution, etc., we of Kolmar make special tests such as breaking point, water bleeding and scientific stain analysis. Many of the major tests are done with micro-photographs (magnified 400 times).

Kolmar's testing program is continuous from the raw materials to the finished product. Every batch of lipstick made, regardless of size, is not only given the 17 major tests, but all the tests are repeated and repeated until the batch is used up. Only a few of the 17 major tests are listed here, but we shall be glad to reveal Kolmar's complete testing data to interested parties.

KOLMAR methods are unique. Its various plants across the country are staffed by *experienced chemists and highly trained technicians,* continually seeking new and better methods . . . and when necessary, inventing and producing special machinery and equipment to achieve the results desired. Thus KOLMAR Laboratories are recognized as *originators, pioneers* and *leaders* in the creation of finer cosmetic products.

Kolmar Private Label Cosmetics give you the ultimate in consumer appeal and satisfaction. Consultation will not obligate you.

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ROBERT T. SMITH

ARTHUR N. SUDDUTH

New Rubinstein Plant Opened

The new $4 million Helena Rubinstein plant at East Hills, Long Island, was unveiled on January 12 at ceremonies attended by many prominent men and women. The 170 beauty products that make up the Rubinstein line will be produced in this plant for delivery throughout the United States, as well as the Gourielli line of cosmetics for men.

The location of the plant was selected by Madame Helena Rubinstein and her son, Roy V. Titus, executive vice-president, and is on the former Clarence Mackay estate on Northern Boulevard near Roslyn, L. I. The two-story building covers 8 acres of a 20-acre site which also features parking space for 200 cars, a specially constructed railroad siding and additional loading facilities capable of accommodating 45 trucks at one time.

Production at this new plant employing over 1000 people is expected to be three times as great as that of the former plant at Long Island City. The plant has underground storage tanks with a 10,000-gallon capacity for storage of mineral oil and alcohol. Mixing vats are located on the second floor, next to the raw materials storage space. The finished products, such as cream and colognes, flow by gravity feed through plastic piping to bottling machines and belt-line assemblies on the floor below. An inside loading area is large enough for four truck trailers at a time.

This plant is the seventh in the chain of manufacturing centers which Madame Rubinstein has established throughout the world, others being in France, England, Australia, South America and the Dominion of Canada. New plants are now under construction in Italy, Germany and Switzerland, while new factories are being planned for New Zealand, Australia and Toronto, Canada.

Whittaker Appointments

Robert T. Smith has been appointed executive salesman by Whittaker, Clark & Daniels, and Arthur N. Sudduth, manager of the company's new abrasive division.

N. Y. Board of Trade Elections

Fred J. Stock, assistant to the director, drug and pharmaceutical division, Mathieson Chemical Corp., has been reelected vice-president of the New York Board of Trade. Robert B. Magnus, vice-president of Magnus, Mabee & Reynard, Inc. was re-elected treasurer.

The following representatives from the drug and chemical industries, in addition to Mr. Stock, were elected directors: Stanley I. Clark, vice-president, Sterling Drug Inc.; Charles E. Dutchess, vice-president and medical director, Schenley Laboratories, Inc.; Claude A. Hanford, president, Pharmaco, Inc.; Charles P. Walker, Jr., director and general sales manager, Chas. Pfizer & Co., Inc.

Nantz Joins Coleman & Bell

John D. Nantz, for many years associated with National Aniline & Chemical division, Allied Chemical & Dye Corp., resigned from that firm to become president of Matheson Coleman & Bell, Inc. He has established his headquarters at the office of the company, 4101 Montgomery Road, Norwood, Ohio.

He plans on further developing the line of C.P. inorganic chemicals, biological stains, indicators, medicinal dyes and reagent organic chemicals.

The reagent organic chemical laboratories of Matheson now at East Rutherford, N. J., will be transferred to the Norwood plant of Matheson Coleman & Bell.

Join MM&R Midwest Staff

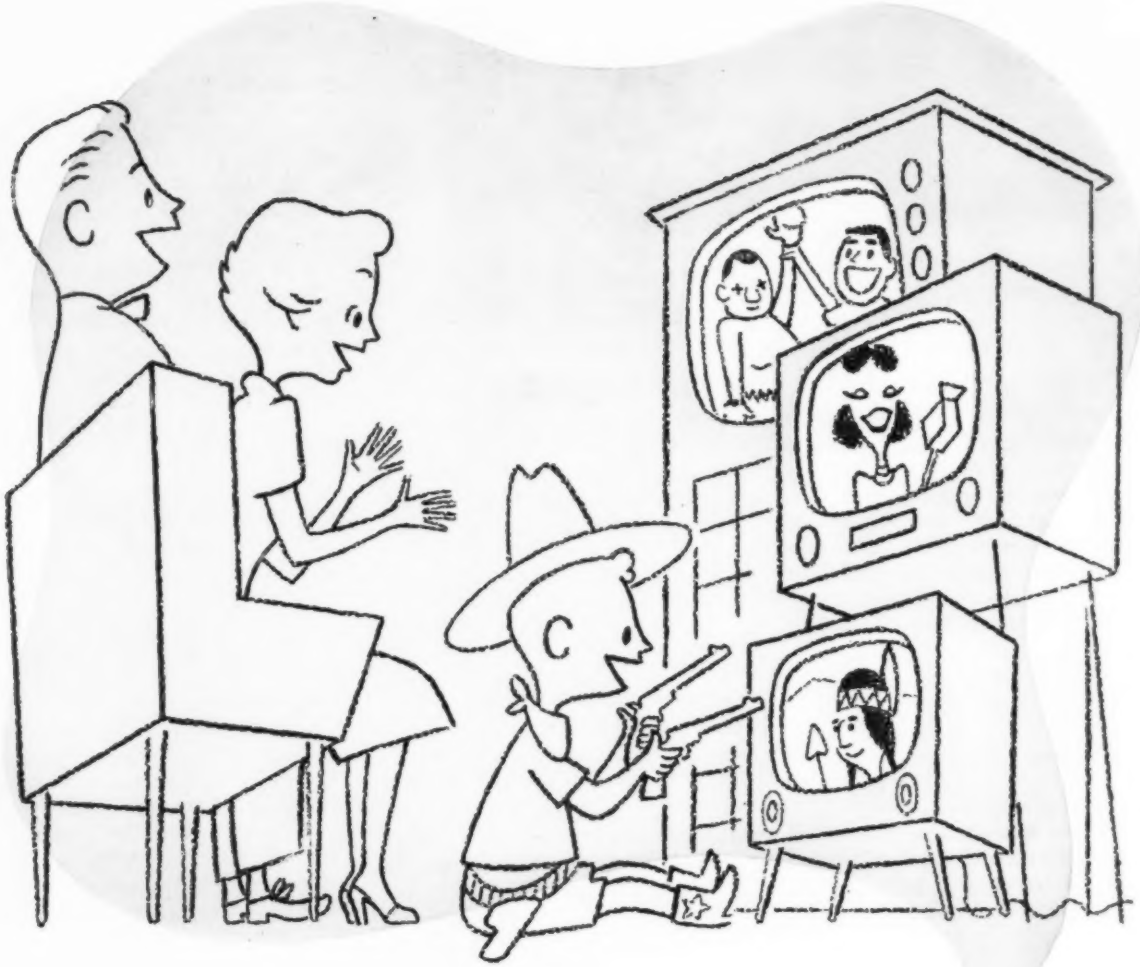
Frank A. Herrick has been appointed sales representative of Magnus, Mabee & Reynard, Inc. for Minnesota and North and South Dakota. He replaces R. J. Hutchinson and has established his headquarters at 4333 Beard Ave. South, Minneapolis.

Ann Hoop is now with the Chicago staff and will be in charge of statistics, sales records and the like, and will keep MM&R customers informed on latest developments in the essential-oil market. They are both under the immediate supervision of A. R. Jensen, head of the midwest staff.

Mills, Lectrodryer Representative

Hartzell C. Mills has been appointed Minnesota representative for the Pittsburgh Lectrodryer Corp., according to George Simpson, vice-president and general manager.

Attending a recent cocktail party held by Prince and Princess Artchil Gourielli at their Park Avenue home, honoring the new Gourielli district sales representatives. Left to right: Claude Sartorius, Jr.; Blake Conley; Eugene Coe; George S. Carroll, sales manager; Prince Gourielli, co-founder of Gourielli, Inc.; Oscar Kolin, vice-president; William R. Tenney, Jr.; Maurice J. Tritter; and Jack N. Harp.



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for Essential Oils,
Aromatic Chemicals, Perfume Compounds

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Lilly Sales Caravan

Executives of Eli Lilly & Co. recently held two briefing sessions for district sales managers on the company marketing plans for 1953. A 4-day meeting occurred in November at the Broadmoor Hotel, Colorado Springs, where members of the "sales caravan" met district managers of the western part of the United States. In early December the sales caravan presented its 1953 merchandising program to district managers of the eastern and southern United States in the Greenbrier Hotel, White Sulphur Springs.

Staff members of Lilly sales caravan and Lilly district managers who assembled at Broadmoor Hotel recently for a 4-day conference on marketing plans for 1953. Left to right: First row, W. R. Spurlock, F. H. Lowe, A. H. Hardt, E. W. Lange, R. F. Matheny, E. B. Kipfer, J. A. Blalock, D. S. Blackmore, J. F. Raleigh and R. H. Rhodehamel. Second row: A. J. W. LeBien, R. H. Rosauer, T. B. Smith, L. V. Clemente, J. A. Loughrey, G. M. Moore, L. L. Wright, O. B. Swearingen and F. M. Hadley. Third row: Dr. R. M. Rice, H. F. Deboest, D. F. Ruedig, M. M. Millar, C. S. Short, A. A. Anderson, C. O. Hendricks, H. M. Fuller, W. E. Nelson and John F. Lee. F. J. Warner, manager of Minneapolis district, was not present at the time the picture was taken.

Appointed by Gair

William H. Caddoo and Wilfred W. Scheide have been appointed assistants to Norman F. Greenway, vice-president in charge of the folding carton division of Robert Gair Co. Mr. Caddoo will be in charge of paperboard production, and Mr. Scheide, of folding carton production.

Farkas Establishes Perfumery Labs.

Dr. Alexander Farkas, perfumer for many of the most prominent essential-oil and perfumery houses both in this country and abroad, has established Industrial Perfumery Laboratories, 1947 Broadway, New York. The new company will specialize in the application of odors of industrial problems.

At the same time, Dr. Farkas will act as a consultant to the perfumery, soap and flavor industries. Telephone number of the firm is TRafalgar 3-6731.

Ellis Elected SKF Director

Addison S. Ellis, vice-president of Smith, Kline & French Laboratories, has been elected a director of the company. He joined the firm in 1936 as office manager, later heading the personnel department. He was named assistant to the vice-president in 1947, and vice-president, in 1950.

Reynolds in New Merck Post

Blythe M. Reynolds has been appointed to the newly created post of vice-president for operations, Merck & Co., Inc., according to James J. Kerrigan, president. He will be responsible for all the company's production and production planning, in addition to his present functions of directing engineering, purchasing and traffic.

Reginald P. Lukens, with the company 37 years, has retired as vice-president for production. He will continue with the company as an advisor to the management as production consultant and will remain a director of Merk & Co. Ltd. of Canada.

Holmquest Named by Armstrong

P. S. Holmquest has been named acting manager of the glass container department of the glass and closure division of the Armstrong Cork Co. He has assumed full responsibility of that department during the leave of absence due to illness, of H. C. Seaman, manager.

G & W Labs. Sold

G & W Laboratories, a privately owned company for 34 years, has been acquired by a newly formed corporation, G & W Laboratories, Inc., according to Carl J. Greenblatt, president. The new company has taken over the assets, trade names and production facilities of the older firm and will institute a program of rapid expansion.

The former company was founded by Mr. Greenblatt, a pharmacist, in Jersey City, N. J. As the business grew the company expanded to its present location, 372 Ocean Ave. It has now acquired another building at 1-35 Ocean Ave. which will more than quadruple its facilities.

Mr. Greenblatt is president of the new firm; George W. Muller, vice-president; Joseph Lepis, secretary; and Dr. Morris Ant, treasurer. S. H. Greene is a director.

The corporation has been authorized to issue 275,000 shares of stock but plans to limit the issue to 50,000 shares at $5 per share.

Millard with Dermetics

Nelson W. Millard, formerly general sales manager of Harriet Hubbard Ayer, has been appointed sales manager of the drug and department store division of Rilling Dermetics Co.

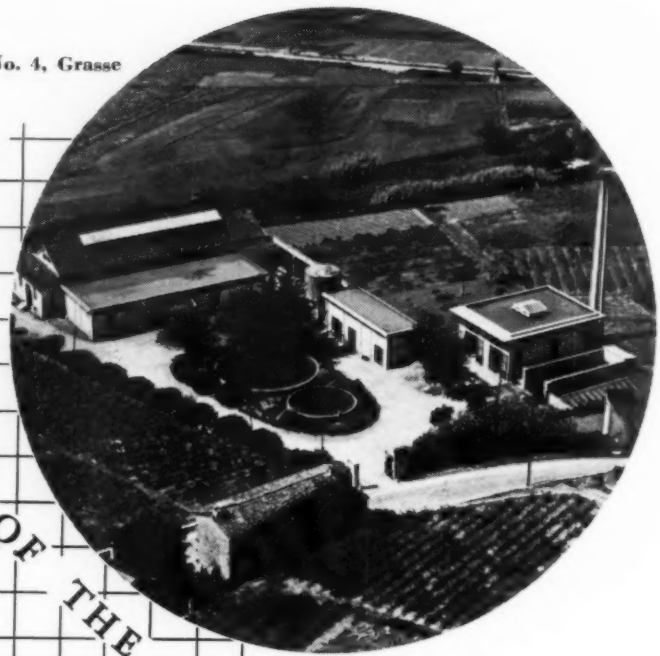
Hoover Appointed by Lilly

Truman D. Hoover has been appointed director of Eli Lilly & Co.'s new Tippecanoe Laboratories, and at the same time will continue in his present capacity as director of the company's glandular products manufacturing division in Indianapolis.

ADDISON S. ELLIS

P. S. HOLMQUEST

Factory No. 4, Grasse



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JAMES T. BOLLETTIERI

GILBERT J. MYERS

Bollettieri on Heyden Sales Staff

James T. Bollettieri, eastern regional sales manager for Baxter Laboratories for the past two years, has been appointed to the sales staff of the antibiotics division of Heyden Chemical Corp. He will make his headquarters at Heyden's New York offices, 342 Madison Ave.

Robinson-Wagner Addition

Robinson-Wagner last month began construction of a new manufacturing unit at the Mamaroneck plant estimated to cost about $170,000. It is expected to be in operation by May, 1953.

The unit will include complete facilities for esterification, high vacuum distillation and condensation reactions involving the synthesis of a series of new products developed by Robinson - Wagner research.

Packaging Forum Dates Changed

The Packaging Institute's Fifteenth Annual Forum will take place on October 12, 13, and 14, 1953, at the Hotel Statler, New York, instead of the previously announced date of one week later, according to Robert deS. Couch, General Foods Corp., and president of the Institute.

Myers Appointed by S & D

Gilbert J. Myers has been appointed manager of the newly-created technical operations section of the foreign operations division of Sharp & Dohme, Inc., according to W. B. Wimpenney, director of foreign operations.

Formerly with the Norwich Pharmacal Co., Mr. Myers will now be responsible for all manufacturing and control operations abroad.

Scholz, Heyden Med. Director

Dr. Dale Scholz has been appointed medical director of Heyden Chemical Corp., according to Simon Askin, president. He had formerly been regional medical director of Armour Laboratories in the New York area.

Calco Office in Detroit

The pharmaceutical department of Calco Chemical division of American Cyanamid Co. opened an office at 931 Fisher Building, Detroit 2, last month, under the management of Harvey P. Pettit. It will serve the states of Michigan, Ohio and western New York and Pennsylvania. Adequate stocks of the bulk pharmaceuticals used by customers in this area will be maintained in Detroit.

Mennen divisional sales managers standing outside the new plant in Morris Township, N. J. Front row, left to right, S. L. Sirota, D. Anderson, W. L. Wisner, T. G. Vandever, F. S. Dieterich, E. A. Moeschen, A. Kaner, G. N. Townley, B. W. Richter, C. K. Wise, P. E. Williams, C. H. Earle, L. E. Derrick. Top row, R. F. Foth, J. J. Walsh, J. Lynd, A. B. Allardyce, W. F. Fowle, L. V. Colson, A. B. Cowley, H. Oldenburg, G. S. Mennen, R. D. Gentry, C. W. Van Vliet, D. Averill, R. Mills, E. J. Burger, C. Gross and E. J. Hubbard. The Company will complete transfer of its products operations by mid-1953.

John Buslee

John Buslee, president of Neuman-Buslee & Wolfe, Inc., died December 5 at St. Francis Hospital, Evanston, Ill., at the age of 66. He began his career with the M. L. Barrett Co., later working for National Aniline & Chemical Co. Mr. Buslee was one of the founders of Neumann-Buslee, having served as vice-president and secretary from 1920 until the retirement of John H. Neumann in 1944, and as president until his death.

He is survived by his widow, Olga, and a daughter, Mrs. Gene Kielhofer.

Frank Harley Downes

Frank Harley Downes, 71, a credit executive of the Mallinckrodt Chemical Works for 32 years, died December 21 at the White Plains Hospital. He became associated with Mallinckrodt in 1920.

Surviving Mr. Downes is his wife, Mrs. Anne Miller Downes.

Raoul D. Keim

Raoul D. Keim, executive of E. R. Squibb & Sons, died December 25 in his home at 737 Park Avenue at 73 years of age. He joined Squibb in 1904 as one of the company's first sales representatives, and became general sales manager in 1917. He served as a director from 1943 to 1946 and more recently, trade relations counselor.

He is survived by his wife, Hildeharde, and a daughter, Josephine.

Walter B. Smith

Walter B. Smith, executive vice-president and general manager of Union Pharmaceutical division of Schering Corp., died December 20 at his home, 32 Hamilton Place, Garden City, Long Island. He had been associated with Emerson Drug Co. and American Home Products Corp., prior to his Schering appointment two years ago.

Thomas J. Starkie

Thomas J. Starkie, vice-president and sales manager of the Witco Chemical Co., died December 21 at his home, 450 East 63rd St., New York. He was 60 years old. He began his career with the Harshaw Chemical Co. and joined Witco in 1921.

He leaves his wife, Mrs. Nellie Starkie; a son, James; and a daughter, Elizabeth Starkie.

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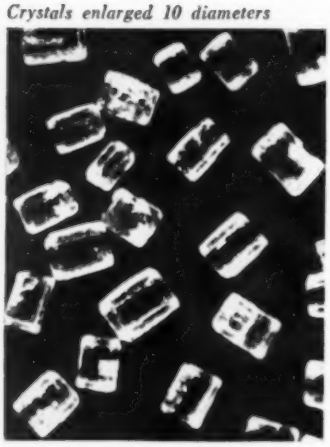
Crystals enlarged 10 diameters



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- ☐ **Highly uniform crystal size**
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- ☐ **Extremely low in heavy metals**

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REAGENTS

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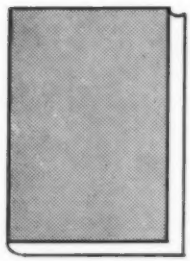
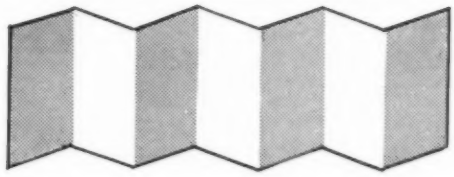


Trade Literature



Algin Booklet

Algin at Work is the title of a booklet being distributed by Kelco Company, 31 Nassau St., New York 5. The booklet describes the general chemical and physical properties of the Algin products produced by the company.

Dow Aromatics

The Aromatic Division of The Dow Chemical Company, Midland, Mich., has issued the Dow Aromatics Catalog which describes the products of this company.

Fatty Acid Booklet

Fatty Acids—Prepared for Action from Nature's Chains, is the title of a 20-page booklet covering the technology and usage of fatty acids from an all-industry point of view. It describes fat-splitting processes, separation of indidual acids such as stearic and oleic, and methods used in purification and chemical modification of the natural acids. A review of major uses for fatty acids of different composition is supplemented with a usage chart showing more than sixty specific applications for these materials. Copies may be obtained from the Fatty Acid Division, Association of Soap & Glycerine Producers, 295 Madison Ave., New York 17.

Bibliography of Vitamin E

Annotated Bibliography of Vitamin E 1950 and 1951 Volume II is available from the National Vitamin Foundation, 150 Broadway, New York 7, at $2.00 per copy.

Certified Color Booklet

National Aniline Division, Allied Chemical & Dye Corporation, 40 Rector St., New York 6, has issued a new 28-page booklet, illustrated in color, covering the subject of certified color for foods, drugs, and cosmetics.

Formic Acid Bulletin

Heyden Chemical Corporation, 342 Madison Ave., New York, has issued a technical bulletin on formic acid. A survey of the literature on formic acid includes a section on pharmaceuticals, and a section on perfumes.

Polyethylene Glycols

Carbowax Polyethylene Glycols is the title of a 52-page booklet just published by Carbide & Carbon Chemicals Company, 30 East 42 St., New York 17. The book describes with the aid of many formulas the varied uses of water-soluble and solid polyethylene glycols, and the methoxy polyethylene glycols in many classes of products including pharmaceuticals and cosmetics.

G-11 Bulletins

Five new and comprehensive technical bulletins have been published by Sindar Corporation G-11, the company's brand of hexachlorophene. The bulletins are: H-2, Chemical and Physical Properties; H-3, Toxicology; H-4, Bacteriological Properties; H-5, Use in Cosmetics; H-6, Use in Soaps and Detergents. Bulletin H-5 gives formulas for various types of cosmetics in which G-11 might be used, such as stick and liquid deodorant colognes, hand creams, and others.

Stearate Booklet

A 32-page technical service bulletin describing the complete line of Witco Chemical Company stearates and their uses and properties may be obtained by requesting Bulletin 53-1 from the company at 295 Madison Ave., New York 17. All stearates manufactured in Witco's Chicago and Brooklyn plants including aluminum, cadium, calcium, lead, lithium, magnesium, sodium and zinc stearates, as well as special soaps are discussed in detail. The various industries in which these compounds find applications and the characteristics of the compounds which fit them for each application are covered both generally and specifically.

Ethanolamine Booklet

A new technical bulletin on the ethanolamines—mono, di, and triethanolamine—has been issued by Carbon & Carbide Chemicals Company, 30 East 42 St., New York 17. Chemical, physical, and physiological properties; shipping data; and applications in all branches of manufacturing and processing industries are included. Information is given on the use of ethanolamines in synthesis and preparation of drugs and pharmaceuticals, as well for giving "shelf-life" to cosmetics.

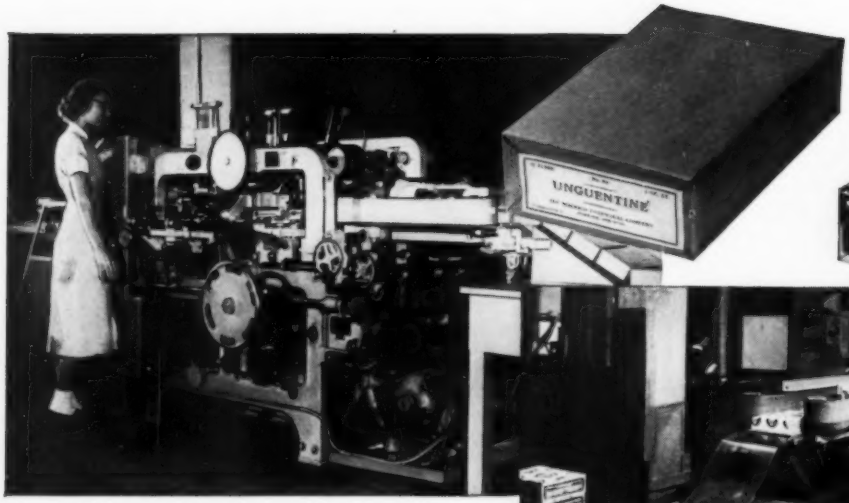
Fatty Acid Guide

Wilson-Martin Division, Wilson & Co., Snyder Ave. and Swanson St., Philadelphia 48, have issued what they call A Guide to Better Fatty Acids. It is simple, yet complete catalog of fatty acids in a circular slide rule form which instantly gives chemical specifications and approximate composition of the various types of fatty acids.

Furfurylamine Bulletin

Commercial Solvents Corporation, 260 Madison Ave., New York 16, have issued a technical data sheet on furfurylamine, a highly reactive heterocyclic compound which is offered for evaluation in research problems.

The company has also issued TDS No. 12 on Methylamines, and TDS No. 14 on Dibutyl Phthalate.



Model F-10-J bundling machine in plant of The Norwich Pharmacal Co.

Model F-6 bundling machine in plant of The J. B. Williams Co.

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Drug and cosmetic companies everywhere are switching to machine bundling . . . Chances are you, too, can make *big new savings* with this modern method . . . One machine will produce up to 30 bundles a minute . . . You save as much as 60% on packaging materials, for inexpensive kraft paper replaces costly boxes . . . And you have no labor problem—only one operator is required.

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Before recommending a specific bundling machine, our experienced engineers study your packaging set-up . . . Help you determine the best type of bundle for your product . . . The materials to use for utmost protection and appearance . . . They may help you improve your entire packaging operation — really cut down on those rising costs . . . You gain the utmost in modern machine bundling when you look to "PACKAGE".

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Management Forum

by Francis Chilson

INDUSTRIAL CONSULTANT

Unionism

In general management is singularly apathetic about controlling the spread of trade unionism. Everywhere there is a defeatist attitude about unionism, which I regard as the most dangerous economic and political threat confronting our country.

I do not mean to imply that workers should not have the right under their own control to organize to protect their own interests, nor do I mean to imply that the moral and legal right to collective bargaining should in any way be impaired. I am opposed to unionism as it is now constituted.

I am opposed to "foreign" control of the unions whether from Moscow or from an all-powerful labor lobby sitting in Washington.

I am opposed to strikes as being uneconomic to workers, management and the public alike. Unless workers, in secret balloting, vote to strike locally or to join a national strike by a substantial majority—and that majority should be 90 per cent of the votes thus cast—strikes should be illegal.

I am opposed to any union measure which hampers or prevents the introduction of labor saving machinery, or which eliminates the economies produced by such equipment by loading or featherbedding the new equipment with superfluous workers.

I am opposed to rigid craft distinctions under which a mason may not drive a nail in a board or a carpenter may not handle a trowel.

I am opposed to all limitations of output imposed upon individual workers or groups of workers.

My opposition is directed against all measures not in the interests of the workers, the public or business.

But what is happening? The CIO and the AF of L once again are talking of amalgamation. In my opinion that would be disastrous because it would enormously enhance the economic and political power of the unions. Every effort should be made to prevent this consolidation of power, which, in many recent instances has been exercised in an irresponsible fashion by labor dictators. At all costs and by every honest means labor unions should be prevented from becoming a political party, similar to the British Labor Party, which came within an ace of destroying England economically.

Management has taken a complacent attitude since the recent national election because labor failed to obey the dictates of their leaders with respect to how they should vote. This is no time for complacency. Management should capitalize this recalcitrance of workers to obey blindly the dictates of their leaders by an all-out educational drive against unbridled unionism.

Illustrative of the present recalcitrant attitude of American workers is the fact that in one of the large aircraft plants recently, a substantial percentage of the workers refused to strike even though a strike had been ordered by their leaders. *Now* is the time to encourage this attitude.

The central fact of labor relations—which management has not adequately utilized against the unions—is that workers do not like to strike. They know that even if their demands are met their loss is substantial and may be disastrous if the strike is of long duration. Intelligent workers know that wage rates and other benefits they are enjoying have come to them, not through the efforts of the trades unions, but through the growth of economic forces over which the unions have no control whatever. That's another fact to be capitalized by management.

Management is complacent because union membership is still so low—only 23 per cent of the total number of American workers. But what twenty three percent have they got? All the vital industries. Consider:

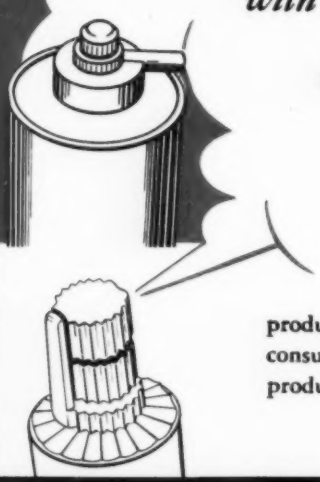
All means of transportation are unionized: railroads, truck lines, airlines.

All means of communication are unionized: telephone and telegraph, radio, television, the newspapers and the magazines (if not editorially, more effectively through the printers).

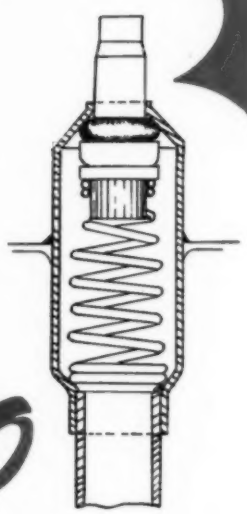
SUCCESS

with your Aerosol dispensed product

depends so much on the *Valve!*



In the record of Aerosol's phenomenal growth, one fact stands squarely out: No dealer will "go along" with a product that leaks or deteriorates in his stock, and no consumer will repeat his or her purchase of a pressurized product that fails to work s-m-o-o-t-h-l-y — *every time.*



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Do you know any other Aerosol valve that combines all these advantages?

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* Flow rate adjustable to suit your particular product.
* Scientifically compounded rubber seal. Minimum swelling and deterioration.
* Package filling by refrigeration *or* pressure.
* Spray and Foam types available, custom designed for *your* product.
* Wide decorative latitude. Can be styled to enhance the eye appeal of your product.

Could you ask more? Will you take less?

Millions of *Pres-O* Valves have been sold with unqualified satisfaction to dealers and consumers alike!

There is no substitute for satisfaction!

Our engineers, with wide experience in every phase of Aerosol dispensing, are ready to consult with you, study your problem, make recommendations and submit blue prints — without obligation. Write, phone or wire.

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All means of generating and distributing power.

That's all they need. Lenin and a handful of men seized a whole nation simply by seizing control of transportation, communications and power generation. This concept has formed the core of communistic technique ever since. You've seen the results all over the world.

What greater power could the unions want than control of transportation, communications and power generation? When the CIO and the AF of L are consolidated that power will reside in the hands of a very few men. While I do not mean to imply that many labor leaders are sympathetic to communism, I feel sincerely that such a concentration of power is inimical to the interests of us all regardless of how patriotic or how honest labor leaders may be.

Management has an opportunity now to develop a program of labor relations that will eliminate the necessity for interstate unions altogether. But it must cleanse its own heart first.

Management should initiate all rate and salary increases; all improvements in working conditions; all improvements in fringe benefits without being forced to do so either by unions or by other economic pressures such as local competition for labor.

Management should realize that if the business can afford to pay larger wages and more liberal fringe benefits after it has been forced to by external pressures of one kind or another, it also could have afforded them without being forced. It's time for management to lead stead of being pushed.

Management should spend less time worrying about profits and dividends and be daily more concerned with the welfare of the people who are making the money. It will be found inevitably in the end that profits will be greater. This was ever so.

Management should take immediate, positive steps to limit the power of national unions by legislative means in the essential industries mentioned above.

Management should unremittingly educate workers against strikes by every fair and honest means. Management should never employ workers who are on strike from other companies. Strikes have lasted in some instances for months and years because the struck workers were employed by other local industries. If workers wish to exercise their right to strike they should finance themselves and the right to unemployment compensation should be denied them. Strikes are frequently evidence of the avarice or stupidity of management and that kind of management should be eliminated.

Management must forever remain an open profession to which all diligent and intelligent workers can aspire; workers must never feel there is no chance at the top. We must never permit the development in this country of a labor party, a separate caste, a separate class. What made this country great is that we have no classes or castes. Pray God it will ever remain that way.

THOUGHT FOR TODAY

Brittania rules the ways while we provide the means.

When Is a Saving a Saving?

As engineers and plant managers know there are three ways of creating savings in plant operations:

The first accrues when a direct reduction is made in any expense whether it is in the cost of fuel oil or in the payroll.

The second accrues when labor or mechanical operations are made more effective even though total expenditures do not decline, as for instance, when a line or an entire plant produces more product with the same expenditure as formerly.

The third accrues when unnecessary expenditures or unwise investments are prevented, as for instance when plant people prevent an expansion program by proving that with slight alterations and additions the existing facilities are capable of the necessary production increase.

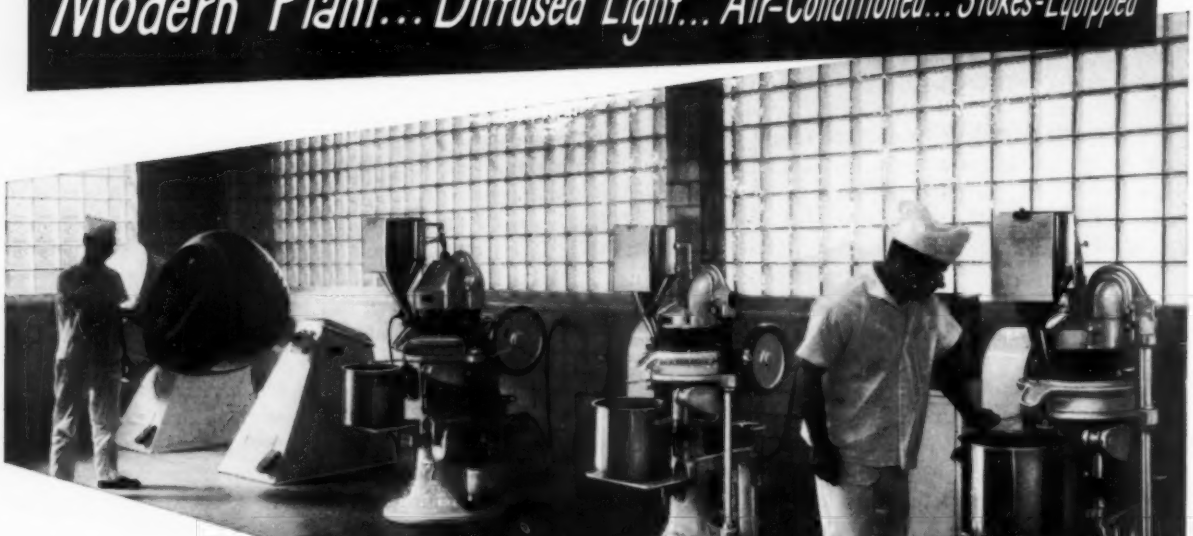
I got a kick out of the way men in top management analyze expense statements. Always they understand the first category. If the payroll is going down and production staying up all is well, especially if the payroll and expenses go down far enough to change the spread between sales cost and selling price from four to one to five to one. Top management people in this industry usually are marketing people and they readily appreciate anything that improves the "spread".

The second category of savings, the marketing people who run our business have more difficulty in understanding. If the payroll and expenses this month are just as large or maybe even larger than last month, Mr. Bigbrow is apt to let out a roar in spite of the fact that the plant may have produced twice as much with the same expenditure as it did before. How many times have I heard Mr. Bigbrow tell the plant manager, "You're always talking about the savings you are making, but I don't see any savings in the figures. Your payroll this month is even a little bigger than it was last month!" Marketing people have a hell of a time understanding the difference between total expenditures and unit costs. Most of them can't really read financial statements anyhow. One very prominent man I know in the trade judges his performance by the amount of cash in the bank. When the bank balance is good, he's all smiles and all scowls when it isn't.

The third category is rarely understood at all. Management takes the attitude that if the money wasn't spent it wasn't saved, and they completely ignore the fact that a man's major contribution may be in preventing waste of money. Preventive saving is in reality the richest source of profits. There have been dozens of instances where I have prevented the construction of unnecessary buildings, unnecessary branch plants, unnecessary machinery. I have prevented clients from going into new lines of business in which I knew they would lose their collective shirts. But do they know it? Sure, but they won't always admit it. 'After all we didn't spend the money, how can you say we saved it?"

Right now I am engaged in the design and construction of a new plant in which two others will be consoli-

Modern Plant... Diffused Light... Air-Conditioned... Stokes-Equipped



38,000 square feet of floor space is devoted to the manufacture of vitamins and related pharmaceutical products at the new Walker Laboratories plant in Mt. Vernon, N. Y. Laboratories and processing rooms are air-conditioned and dehumidified . . . Diffused light reaches all parts of the plant through exterior glass block . . . Batteries of Stokes rotary tabletting presses, coating pans and polishing heads are finished in ivory tone . . . All of which combine to provide a fine example of the pharmaceutical house of today.

All Stokes tabletting presses, whatever the size of tablet or speed of operation, produce tablets perfect in size, weight, density and finish.

Advantages to the many pharmaceutical firms using Stokes equipment include high-speed production, low-cost operation, uniformity of product and notable dependability.

Punches and dies for Stokes tabletting presses, including carbides for long runs or abrasive materials, are made in the Stokes plant. Send for the booklet, "How to save Money on Punches and Dies" and for Catalog No. 800, "Stokes Tabletting Presses."

F. J. Stokes Machine Company,
Philadelphia 20, Pa.

STOKES

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dated. One of these plants is the original plant (in the wrong place incidentally) and the other is a branch plant. I found that whereas the branch plant actually saved $79,000 in freight last year the cost of operating it was $169,000 exclusive of direct labor. Now here's what will happen when the new plant is finished. I can see it coming. The total freight bill will go up $79,000 and possibly more because of substantially increased total business. The general manager will spot the increase in freight and holler like a stuck pig. They always do. He'll ignore the $169,000 because that will be distributed in various ways in the accounts but the freight increase will stick out like a black eye. He'll say to me plaintively, "Goddammit, you told me before we built the new plant expenses would go down. But jeze look at that freight account! Going up like a skyrocket!" I'll have to smooth his feathers down and persuade him to read the whole financial statement not just part of it. I am used to that. Its tougher for an inside man because Mr. Bigbrow won't always listen to him.

Recently one of my clients' plant manager reported as a result of our joint endeavors, a direct saving of a great many thousands of dollars. Whereupon the enthusiastic president who also directs marketing increased advertising appropriations by more than the amount saved. But the advertising was no good; sales dropped instead of increasing. When the financial statements were in you could have heard the president's anguished howl for a mile. "Look at that profit and loss statements;" he howled. "Where the hell is all that money you saved? Profits are down; not up!" He'd forgotten he'd blown the whole wad in on a futile advertising campaign and more besides. But something like that always happens. That's why all plant managers have gray hair.

Site Location

Much has been written on this topic; much more needs to be written. Perhaps I should say that people who build new plants should read some of what has been written because only God knows what motivates the selection of some sites. Witness: a cosmetic plant is being built in the midwest. The engineers in charge of the project had an opportunity to purchase an excellent tract in a thriving small city where the plant would have had all city service and immediate access to truck terminals. The site was rejected because of a price differential that amounted to $30,000. They selected a site in a still smaller city thirteen miles away where there are no truck terminals at all, which means that trucking service will be lousy at best, and directly the engineers began to build, they discovered the necessity of tunneling under a main line railroad to reach city water and sewer lines. Since such a project must conform to ICC specifications the engineers had to spend $25,000. So all that was saved on the site was foolishly spent and the plant is in a lousy location from an economic standpoint.

One cannot be too careful in selecting a plant site. Nobody's word about local conditions can be taken for granted. I learned this years ago when I accepted the word of a local builder, who should have known better, that city facilities were in the main road in front of the plant. This was one of the reasons that led me to recommend the site—the builder incidentally was a friend of the company president's and I was assured by him of the reliability of the builder—but when construction had proceeded too far to turn back, it was discovered that city facilities were on the other side of the railroad track instead of in the main road, so we, too, had to invest an extra 25 grand.

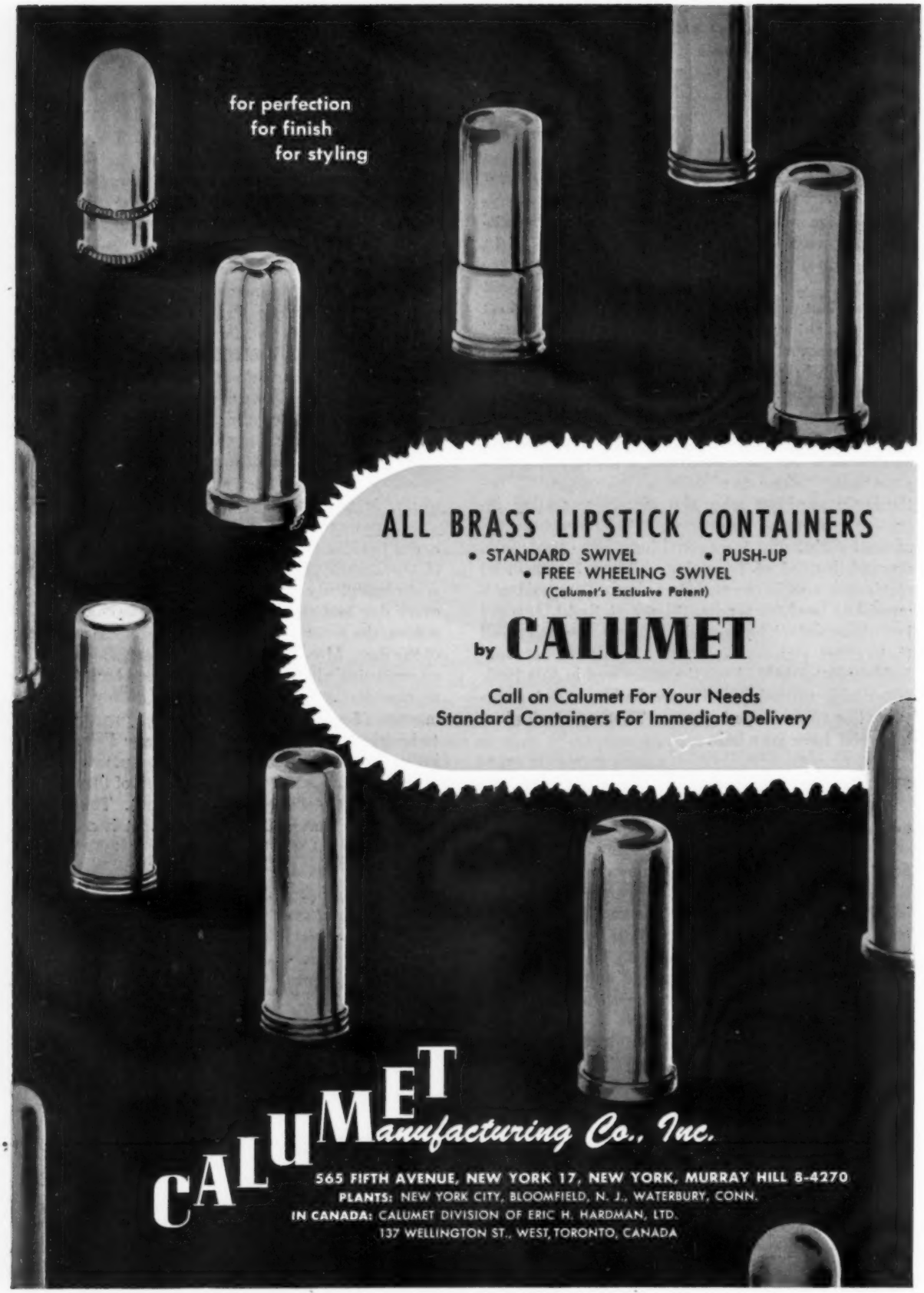
More recently still I recommended a site which met 95 out of 96 site requirements. The missing one was lack of sewage facilities in a city that will not permit septic tanks because the plant is too close to the watershed. However, we could have, by paying an annual rent, access to the private sewer of an adjoining plant. This branch plant is owned incidentally by one of the largest firms in the country. Upon being questioned, the branch plant manager assured me of plenty of capacity and a willingness to cooperate in every way possible, subject to the approval of his home office, which, in due course was granted. Acting on this assurance we went ahead with our project. Then when it was too late to turn back, I got hold of the engineer of the branch plant and discovered that the private sewer had plenty of capacity for six out of eight hours every day and then, because of the disposal of plant wastes, the sewer was at full capacity of the remainder of the day. Moreover the company was contemplating an expansion within the year that would keep the sewer at capacity at all times. I didn't blame the plant manager; I perceived him to be a nice guy who wanted to be friendly; I blamed myself because I should have insisted on talking directly with the plant engineer, the man who would have the facts—all of them. So we had to install a sewage treatment plant. The moral of this story is that while a fact is a fact is a fact, you have to find out who has 'em.

The following information is supplied by manufacturers of the equipment described and claims made below by these manufacturers are passed along for what they are worth. Presentation of such notice in this department is not to be taken as endorsement of the claims or of the equipment.

Central Supply Still

To meet the growing trend of including a Central Supply in new hospital construction and renovation the Barnstead Still & Sterilizer Company of Boston has engineered its new compact, space-saving Central Supply Still. Although thus far marketed mainly for hospitals, where it has gained immediate acceptance, this model is proving its value in the scientific library.

The famous Barnstead Type "Q", pyrogen-removing water still has been combined with a handy 12 gallon Pyrex tank in a compact wall mounting arrangement. The water still has a capacity of 10 gallons of high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purity distilled water per hour. Unions used in mounting the unit can be easily loosened, making for speedy installation. Designed for the smallest wall space possible, the new Barnstead Central Supply Still is now in full production and complete information and literature may be had by writing to Barnstead Still & Sterilizer Co., 119 Lanesville Terrace, Forest Hills, Boston 31, Mass.

Corrosion-Resistant Tank Liners

Corrosion-resistant tank liners made of AGILENE (Polyethylene) and AGILIDE (Unplasticized Polyvinyl Chloride) are now offered by the American Agile Corporation.

These tank liners, which are of fully welded construction, are made to customer's specifications and can be furnished complete with drain and overflows, including AGILENE or AGILIDE pipe flanges, fittings and valves, permitting incorporation into existing pipe lines and installations.

The chemical inertness of AGILENE or AGILIDE and the welding method employed in the fabrications of such tank liners guarantees a leak-proof liner and reduces maintenance and replacement costs of storage, make-up, and plating tanks containing corrosive liquids.

AGILENE and AGILIDE tank liners of all sizes and shapes, with wall thicknesses up to 1", are fabricated at the plant of the American Agile Corporation in Maple Heights, Ohio, or on the site of final installation, depending on the complexity and size of the particular tank liner.

Address inquiries to American Agile Corporation, P. O. Box 168, Bedford, Ohio.

Demineralizer

The Penfield Manufacturing Company of Meriden, Connecticut, has announced the addition to its line of industrial demineralizing equipment of a new Mono-Column Demineralizer with a capacity of 4500 grains designed for users of up to 100 GPH of super high purity water.

The new Penfield M-100 Demineralizer is exceptionally compact, requiring for its installation only 2′ x 2′ x 7′6″ of floor space, connection of influent to a plant's water system, and connection of effluent to those points where high purity water is required (process, boiler feed, etc.).

Raw water enters the demineralizing unit at the influent and after passing only once through the mono-column of mixed cation and anion resins, is received at the effluent stripped of all its impurities. A Flow Meter on the influent enables the user to control the water intake for the most efficient ion exchange action and an Electric Purity Meter provides continuous indication of the purity of the demineralized water being received at the effluent.

Thus, once a Penfield M-100 Demineralizer is set in operation, production of up to 100 GPH of super high purity water is accomplished completely automatically and without the use of heat or steam power. Operating costs average only $.15 to $.30 per 1000 gallons for mineral-free water the equivalent to triple-distilled (as compared to distillation costs of $2 to $6 per 1000 gallons).

When purity of the effluent falls below the desired standard, indicating the need for regeneration of the resins, such is accomplished in a single operation consuming under an hour of time by means of a uniquely simple regeneration system that is an integral part of the demineralizing unit.

The effluent lines carrying the demineralized water to desired points-of-use are plastic as are all the lines and valves dealing with corrosive regeneratives. The unit's central control valve is acid-resisting bronze and all influent and distribution piping is red brass. In addition, this new model Penfield Demineralizer features an exclusive "visual window" design which allows the removal of the unit's central distribution system without emptying the column of its resins.

Complete catalog information on Penfield's full line of Mono-Column and Multi-Column Demineralizing equipment, including the above-described new M-100 unit, may be secured by writing Mr. Edward H. Clohessy, General Manager, Penfield Manufacturing Co., Inc., 19 High School Avenue, Meriden, Connecticut.

Fork Truck

Development of a new 2500-pound capacity electric fork truck that travels at speeds up to 7 miles per hour and makes a U-turn in an 8½-ft. aisle has been announced by The Baker-Raulang Company.

Called the FS-25, and designed to speed the handling of materials in manufacturing plants and warehouses, the new truck is rated for loads up to 2500 pounds (48 inches long). Important new design features of the FS-25 include:

Worm-gear driven power axle. Because it was specifically designed to be used under the low speed-high torque conditions found in fork truck operations, worm gearing maintains its efficiency over much longer work periods than any other type. To fork truck users this means dependable tractive power, less maintenance, according to Baker engineers.

"Gyroscopic" trailing axle construction. Mounted in rubber blocks which cushion twists and bumps to protect truck loads, the trailing axle in the FS-25 allows the truck to step over uneven flooring and obstructions —without upsetting the stability of the truck. Even with the truck's four wheels on four different surface levels, the truck chassis is perfectly level.

Baker-exclusive "Dynamic Braking". This feature was built into the FS-25 to prevent motor burnouts caused by sudden reversals of the truck's direction. Dynamic Braking brings the truck to a smooth stop before direction can be reversed. Without Dynamic Braking, fast direction changes have about the same effect on industrial truck motors as shifting from "high" to "reverse" without slowing down would have on your family car.

Baker-built motor. Heart of the FS-25 is a powerful motor designed and built by Baker. To make sure this

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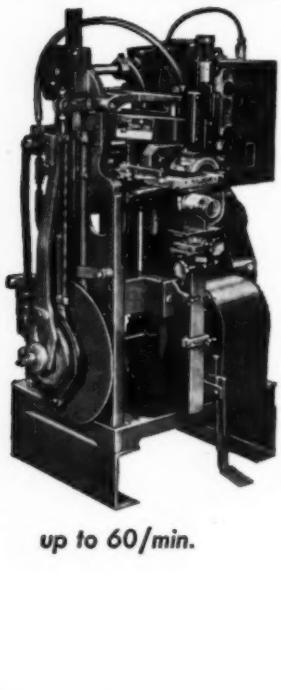

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motor will handle extreme overloads when it has to, Baker engineers put 30 per cent more copper in it than is used in any other industrial truck motor on the market.

The FS-25 provides a standard telescoping lift of 130½ inches. Other specifications and dimensions:

Overall length:	119	inches.
Turning radius:	65½	"
Width:	34	"
Wheelbase:	38	"

New Mixer

Increased production and a minimum of maintenance are the major attractions of a new type change-can mixer offered by Industrial Process Engineers, 8 Lister Ave., Newark 5, N. J. It is designed primarily for use where a number of different products are made by mixing directly in cans or drums, such as in the blending, thinning and tinting of paints, varnish or other chemicals.

A description of its design features clearly indicates the advantages of this I-P-E unit. The drive assembly (A) swings easily around the post (B), which is affixed to the floor and a wall or overhead beam. The unit can thus be quickly positioned over any one of a number of cans while others are being moved or prepared. The height of the drive unit, and consequent agitator location, is adjusted through the hand crank (C) and gear track (D).

The outstanding feature is the removable turbine agitator (E), whose pitched-blade impeller and peripheral speed are designed for fast and thorough mixing. This unit is coupled to the drive simply by inserting the shaft end (F) into the drive socket (G) and turning. A spring lock holds the two together. Disconnecting is accomplished just as easily merely by twisting and lowering. With this arrangement, therefore, it is possible to have a separate, inexpensive agitator for processing each product. Cleaning problems are thereby greatly reduced, and maximum production can be maintained.

Colton Tanks

A complete range of stainless steel tanks covering a wide variety of types and applications has been added to the ever-expanding line of products of Arthur Colton Company, Detroit, specialists in pharmaceutical and packaging machinery for nearly 70 years.

In making the announcement, Kenneth B. Hollidge, executive vice president of the Colton Company, points out that these new products have many applications in the food, pharmaceutical, beverage and cosmetic industries and therefore are closely allied to the company's present line of products which, for well over half-a-century, has included processing and filling equipment for these same industries.

The new line includes standard and special stainless steel tanks in sizes ranging from small, five-gallon stock pots, up to storage and processing tanks of 5,000 gallons capacity. Types include vertical and horizontal shapes, single and double shell, with or without insulation, and, a special type in which a dimpled jacket is welded to the smooth inner shell with a weld at each dimple. This construction forces circulating refrigerating or heating medium into flooded direct contact with the inner shell and assures highest efficiency in transmission of heat and cold used in processing.

Materials and fabrication are kept to the highest standards of quality. Exteriors are carbon steel or stainless steel; interiors are stainless steel, brought to a high polish; all seams are welded outside and inside, ground smooth and polished; legs are nickel plated. All tanks are engineered for practicality and convenience in use and provide correct working heights and clearances and easy access to all surfaces for thorough cleaning.

New Automatic Cellulose Banding Machine

Designed to replace hand labor, overcome a serious production handicap and deliver uniformly and precisely banded bottles is this new machine, built by the makers of World Labelers, Economic Machinery Company, Worcester, Massachusetts, Division of Geo. J. Meyer Manufacturing Co. The same exacting standards of engineering and production that are essential to automatic, precision labeling are applied to automatic banding with equally effective and dependable results.

The first World Automatic Banding Machines off the assembly line will apply plain bands and printed bands that do not require accurate register in relation to the printing. Any size or shape of bottle up to 3¾ inches diameter may be automatically banded, the band diameter for purposes of continuous production remaining fixed although the length of band may be varied within the ordinary commercial limits. World Banding Machines to handle all ranges of band diameters, printed bands of all types and bottle spotting will shortly be in production.

How It Works. The cellulose banding material is in roll form, feeding into position over the bottle before being cut. The bottle is indexed to receive the band by a starwheel feed. The band is opened by a combination of mechanical and vacuum action prior to accurate positioning of the cut band over the bottle. The band is stripped off a plunger onto the bottle neck and cap. Simple attachments permit quick changeover to various sizes of bands and bottles. Operating attention is required only to renew the roll of banding material. The operation of other machines on the bottling line by the same operator is perfectly feasible. Ease of maintenance as well as ease of application and operation is a feature of this new World Automatic Banding Machine. Gone are the days of expensive, production hampering bottling line "bottlenecks" necessitated by hand application of bottleneck bands. One more packaging operation has become fully, economically and dependably automatic.

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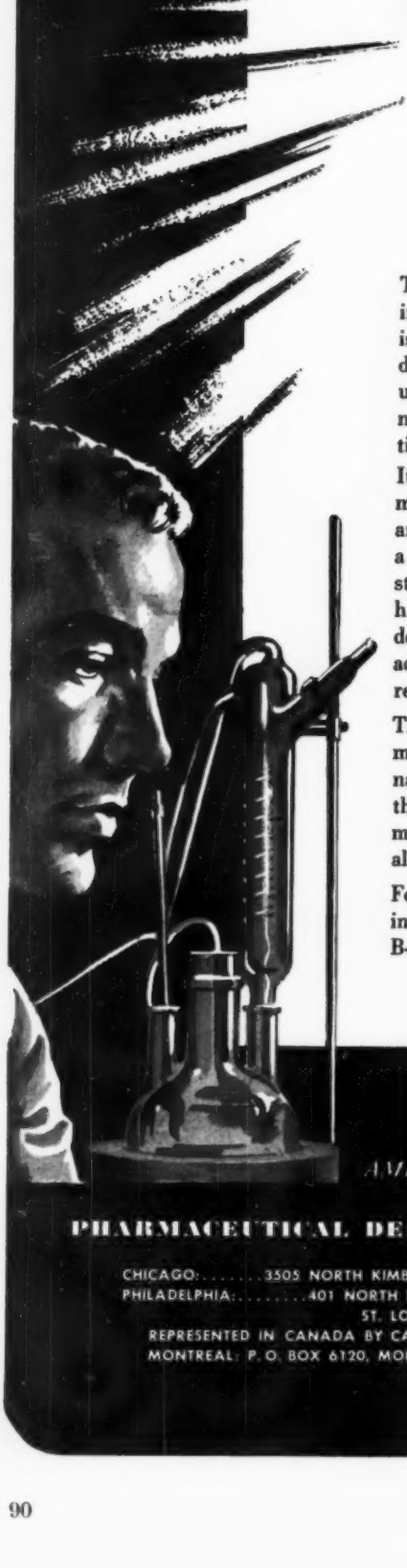

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The essential role of folic acid in the formation of nucleoprotein is demonstrated most dramatically in those tissues undergoing rapid proliferation, notably hemopoietic and fetal tissues.

It has long been known that mouse and rat embryos die and are resorbed in the presence of a folic acid deficiency. Recent studies have shown that in humans, too, an acute folic acid deficiency induced by the administration of an antagonist results in fetal death.

The severity of this effect merely accentuates the basic nature of the role played by this vitamin in the multiplication of all, or almost all, living cells.

Folic Acid should be included in all multi-vitamin and B-Complex formulae.

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Advancing Therapy

Studies with Mixed Ion Exchange Resins

In a paper presented at the New York Academy of Sciences on November 15, 1952, K. G. Kohlstaedt, B. L. Mertz, R. S. Griffith and O. M. Helmer reported that a mixture incorporating a carboxylic type of resin in the hydrogen form with one-third of the preparation as the potassium salt of this resin proved to be a satisfactory agent for increasing fecal excretion of sodium. The effect of the addition of a polyamine type anion resin to the cation exchanger was investigated *in vitro* and *in vivo*. When the anion and cation resins were placed in a buffered phosphate solution containing electrolytes in amounts similar to those found in the intestinal fluid, the uptake of phosphate and chloride was greater than when anion resin alone was added to the solution. The sodium removed per gram of resin (total quantity) was also increased when the mixture contained not more than 15 per cent anion resin.

In human subjects a comparable mixture of resins not only increased the efficiency of the resin for sodium removal, but augmented the fecal excretion of phosphate. A concomitant decrease in the urinary excretion of sodium and phosphate was observed. In patients with congestive heart failure and cirrhosis of the liver it has been possible to demonstrate a negative sodium balance when a resin preparation containing 12 per cent anion exchanger was administered in conjunction with a limitation of dietary sodium. The use of ion exchange resins enhanced the effect of dietary restriction in essential hypertension. In eight patients with sustained hypertension both the average systolic and diastolic arterial pressures were lowered to within the range of normal. In some individuals a satisfactory therapeutic response was obtained when the diet contained as much as 1.5 Gm. of sodium per day while no more than 64 Gm. of the cation-anion resin mixture was ingested. In many instances when treating hypertensives, additional potassium in the form of citrate, acetate, and bicarbonate was needed to prevent the creation of a deficiency of this cation.

On the basis of these experiences it appears that a carboxylic type of resin along with an anion exchange is a satisfactory therapeutic agent for the control of edema due to the retention of sodium and for the treatment of hypertension.

Glutamic Acid in Mental Deficiency

The results of the administration of glutamic acid to 15 feebleminded, maladjusted boys, aged ten to fifteen years, with an I.Q. of 54 to 76, has been studied by M. Foale (*J. Mental Sci.* 98:482, 1952). The glutamic acid was given in the form of tablets, each containing 0.5 Gm. of the naturally occurring dextrorotatory substance. The daily dose was 9 Gm. for the first four months, and 12 Gm. for the subsequent six months. There were no side-effects. A comparable group of 15 boys was used as a control group. Four of the treated boys gained in I.Q. from 8 to 11 points; the comparable improvement in the control group was negligible (2 to 3 points). There was no difference between the two groups in the gain in P.A. (practical ability) as measured by the Passalong Test. In eight of the treated boys there was a definite improvement in general adjustment: their behavior was improved, they were more alert, self-confident and showed more interest, while none of the control boys showed such marked changes.

Neomycin in Urinary Tract Infections

The value of the antibiotic, neomycin, in the treatment of urinary tract infections is indicated in the report of R. M. Nesbit, A. I. Dodson, Jr. and C. S. MacKinney (*Antibiot. & Chemother.* 2:447, 1952). They found, in 102 *in vitro* sensitivity studies, that neomycin compared favorably with other newer antibiotics. In 79 of these studies the organism was sensitive to neomycin in concentrations of 25.6 mcg./ml. or less, and in 31 studies neomycin could be considered the antibiotic of choice.

In clinical studies, neomycin sulfate was used in the treatment of 18 cases of chronic urinary tract infections, all of which had previously proven refractory to from one to five different chemotherapeutic and antibiotic agents. Twelve of these patients had conversion of urine to normal as determined by post-therapy cultures. Eight of these were clinically free from infection when seen from one week to nine months following therapy. Toxic reactions were minimal using a low but clinically effective dosage.

Repository Curare in Polio Treatment

Muscle spasm, says G. J. Boines (*Amer. Pract.* 3:879, 1952) is a major component of acute poliomyelitis. Modern treatment calls for the relaxation of muscle spasm which limits active motion and may make passive motion prohibitively painful. Curare preparations have proved to be simple and reliable means to achieve the release of muscle spasm.

The recent development of a crystalline curare preparation in a repository medium has further simplified the clinical use of this drug. There have been no reports of serious untoward reactions following use of this preparation. Previously, the aqueous curare preparation had to be injected several times daily; mild but annoying side effects such as diplopia, ptosis, headache, dizziness, and listlessness were common; confinement to bed was necessary for one hour after each aqueous dose; physiotherapists had to schedule their visits closely according to the time of injection. With the repository preparation the patient requires but one injection per day; he may be ambulatory; side effects are fewer and the physiotherapists' time is put to better advantage.

To date 242 injections have been given to 17 acute poliomyelitis patients. The onset of affective muscular relaxation was generally noted in 30 minutes, and relaxation persisted for eight to 24 hours, permitting extended periods of physiotherapy. It has not been necessary to use prostigmine, an effective curare antidote, in any instance. Of 17 poliomyelitis patients treated with the aid of this curare preparation, 13 made complete recoveries; three have residual non-handicapping paralysis; and one is handicapped with complete paralysis of both lower extremities. These results are similar to those reported with

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aqueous curare, which compare favorably with those achieved by any other method of therapy.

Vaginal Douching

From a strictly medical viewpoint, says D. V. Hirst (*Am. J. Obstet. & Gynec.* 64:179, 1952), there is little if any indication for routine douching in the absence of any demonstrable pathology. However, in view of the fact that the routine use of vaginal douches for hygienic purposes is so universal, the medical profession is forced to recognize that a douche properly prepared and administered is harmless. He therefore summarizes the accepted techniques and practices in the use of vaginal douches. They should not be taken under pressure because of the risk of retrograde infection, of which he reports five cases due to this cause. A douche should always be acid, not alkaline. The solution should have a pH below 5.0: e.g., ¼ to ⅓ of a cup of white vinegar or 2 teaspoonfuls of U.S.P. lactic acid to 2 quarts of water. Acid vaginal jellies are more effective than douches for lowering and maintaining vaginal acid pH at the proper levels. A douche should always be taken lying down with the knees drawn up and hips raised either on a bedpan or on a heavy folded towel in the bath tub. The hips should be raised high enough so that the falling away of the intestinal viscera will provide negative pressure to aid in the distension of the vagina by the weight of the douche solution. When a long hot douche is used, the temperature of the water is more important than the amount. Douches are not effective as a contraceptive measure. There is no harm in douching during menstruation. Douche equipment should be cleansed with soap and water after use, and frequently sterilized by boiling.

Nicotinic Acid in Senile Psychoses

In his report in the *American Journal of Psychiatry* (108:888, 1952), I. Gregory states that careful study and evaluation of senile patients has shown that the group with recent personality changes of less than six months' duration give the best response to nicotinic acid therapy. In this study all patients received an initial dosage of 300 mg. of nicotinic acid 3 times daily by mouth and 100 mg. daily parenterally. This dosage was continued for a maximum duration of three months. If a good response occurred, the dosage was gradually reduced as soon as the maximal degree of response was attained, but a maintenance dose of 100 mg. daily by mouth was continued for an indefinite period. Fifty-four patients were included in this study, 14 of whom were under 65, and 40 that were over 65 years of age. Of the 14 patients under 65, 8 showed dramatic or significant improvement and were able to leave the hospital; and only 6 showed continuation of their symptoms or slight improvement. Of the group over 65, only 4 showed improvement to such a degree that resocialization was possible.

According to Gregory, the mode of action of nicotinic acid in effecting improvement in certain patients with psychosis of senility is by no means established, and there is considerable controversy over this point, some physicians believing that it acts by a "saturation effect" even in the absence of a deficiency, and others feeling that cerebral vasodilatation may take place.

In concluding his report, Gregory suggests that if small doses of nicotinic acid were given daily to all individuals in the pre-senile or senile age groups, this prophylaxis would prevent or delay the onset of an appreciable number of psychoses of senility.

Intestinal Antisepsis

In considering modern concepts of intestinal antisepsis, E. J. Poth (*Am. Surg.* 18:572, 1952) lists the properties desired in an intestinal antiseptic. In his opinion it is most important that the substance be poorly absorbed from the gastro-intestinal tract, because whenever the compound is freely absorbed untoward toxic reactions occur frequently. Only two of the sulfonamide drugs, sulfasuxidine and sulfathalidine, have proved practical as intestinal antiseptics. The sulfonamides are chiefly bacteriostatic, whereas the antibiotics are chiefly bacteriocidal. Neomycin proved to be the most effective antibiotic for intestinal antisepsis, because so little of it is absorbed from the gastrointestinal tract that its oral administration did not result in toxic reaction in 350 patients who received the drug for periods up to three months. In most instances, neomycin completely eliminated bacteria from the gastrointestinal tract within 24 hours. Following elimination of bacteria, yeasts begin to grow out in large numbers, but no instance of yeast infection nor of bloody diarrhea or ulcers in the gastrointestinal tract was observed. Neomycin does not inhibit the growth of *Aerobacter aerogenes* in approximately 10 per cent of patients. This observation caused Poth to combine neomycin with sulfathalidine. Sulfasuxidine and sulfathalidine, streptomycin, and neomycin do not interfere with the normal healing of the bowel tissues nor do they cause increased bleeding. In emergency surgical procedures, when the intestinal tract cannot be prepared by intestinal antiseptics before operation, as much as 1,000 cc. of a one per cent neomycin solution can be introduced into the gastrointestinal tract; if this is done, no organisms can be cultured within 45 minutes. However, not more than 100 cc. of the one per cent solution of neomycin should be spilled into the peritoneal cavity, because by this route neomycin in larger doses might prove toxic. Intestinal antiseptics are effective in lowering the incidence of peritonitis following gastrointestinal surgery. In the past 10 years neither leakage from a suture line nor postoperative peritonitis was observed at the Poth's clinic. It is no longer necessary to resort to so-called aseptic operative procedures of intestinal suture, and open anastomosis can now be employed, which permits a more accurate suture and better preservation of the blood supply. The combination of neomycin with sulfathalidine is an almost ideal intestinal antiseptic.

Niacin for Dysmenorrhea

According to A. P. Hudgins (*Amer. Pract.* 3:892, 1952) there is evidence that painful menstruation upsets the routine of about 50 per cent of women during childbearing age. The discomfort varies in degree and duraction. Cyclic discomfort has been called "the greatest cause of marital misunderstanding." It results in much loss in efficiency and in working hours in industry, business and the home. In treating the woman with menstrual disturbances, good medical care requires the correction of any pathology found. The big problem remains for those individuals in whom no gross pathology is clinically evident; namely, essential dysmenorrhea.

In seeking to relieve this condition, niacin, in 100 mg. doses given twice daily and every three hours during cramps, was administered to 111 women complaining of severe menstrual cramps. Forty were followed for six month and the effect of niacin determined. Thirty-five (87.5 per cent) of the 40 obtained satisfactory results. In commenting on these findings, Hudgins points out that niacin is economical and readily available. He feels that it should be given further study in the treatment of dysmenorrhea.

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Readers' Questions

SIMPLE HAND LOTION: I am interested in obtaining a formula for making a hand lotion. If possible, the preparation should be easy to make and not require extensive equipment or an alcohol permit. Philadelphia.

Of course, the simplest hand lotion is one made with glycerine and rose water, which is still a popular standby for general hand care. Preparations containing up to 50 per cent of glycerine have been marketed but somewhat smaller proportions may be used and suitable rose water compositions are readily available. All that is required is simple mixing and perhaps filtering to obtain a clear solution. Of course, a somewhat more modern version of this product may be obtained by using from 20 to 30 per cent of glycerine with one of the more modern floral odors that are available either in solution or as solubilized concentrates. One version of such a preparation calls for the use of:

Glycerine	**15 parts**
Sorbitol syrup	**5 "**
Floral water, to make	**100 "**

This preparation should be preserved, and a suitable preservative for the purpose is butyl p-hydroxybenzoate at rate of 12 grains per gallon (1:5000).

SLIMMING PREPARATIONS: I am interested in the manufacture of a slimming soap and slimming bath salts. We would be very pleased if you could advise with good formulas. Brussels.

Weight reducing preparations of this sort find but little use in the United States. However, after a check of various sources, I located pertinent information in the British publication, "Pharmaceutical Formulas," from which I have obtained the following formula for an obesity soap, which was claimed to be useful as an aid in weight reduction:

Potassium iodide	**15 Gm.**
Sodium hyposulphite	
Potassium hydroxide	
of each	**0.15 Gm.**
Rose water	**100 cc.**
Curd soap, in shavings	**180 Gm.**
Alcohol (95 per cent)	**900 cc.**
Oil of lemon	**4 cc.**

Dissolve the soap in the rose water by means of heat, and the first three ingredients with the perfume in the alcohol, and add the alcoholic solution to the soap solution with constant stirring, then filter.

With regard to a slimming bath salt, the same text provides the following formula:

Sodium carbonate (dried)	**1 part**
Powdered hard soap	**8 parts**
Perfume	**as required**

ANTIPRURITIC LOTION: Can you furnish us with a formula for a liquid preparation for the alleviation of the itch of eczema, poison ivy, insect bites and the like? I would prefer one with slightly anesthetic properties. Mechanicsburg.

I think that something on the following order, taken from one of the newer dermatological texts, will meet your needs for an antipruritic lotion for general use in the treatment of itch:

Menthol	**0.3**
Phenol	**1.2**
Solution of coal tar	**6.0-12.0**
Benzocaine	**6.0-12.0**
Calamine lotion, to make	**120.0**

HORMONE CREAM REGULATIONS: We are well acquainted with most of the problems associated with the production of hormone face creams. However, we would highly appreciate it if you will give us the following information:

Is the manufacture or the sale of hormone face creams in the United States submitted to other regulations than those provided for in the Food, Drug and Cosmetic Law?

In the production of a hormone face cream in the United States, is it necessary, by law, to be assisted by a pharmacist or a chemist? San Jose.

With respect to your first question concerning the manufacture and sale of hormone creams in the United States, this is regulated only by the Food, Drug and Cosmetic Law. As far as I know, no other Federal agency is concerned. In answer to your second question, a pharmacist or a chemist is not required by American law to be present during the manufacture of a hormone face cream. Of course, there are other regulations set up by various states and cities.

Compounder's Corner

Hair Dye Set

The hair dye set described by K. Goldstaub in Dutch patent 68,269 (through *Chem. Abstr.* 46:9268, 1952) consists of a hair dyeing base and a developing liquid. The base is one of the known dye bases which are changed into dyes by the action of an oxygen-supplying developer. The developing liquid is a solution of hydrogen peroxide to which has been added enough of a wetting agent to serve not only as a stabilizer for the peroxide, but also as a washing agent for the hair. In one example, the developing liquid is prepared from a 15 per cent solution of hydrogen peroxide and a 60 per cent solution of Turkey Red oil in a proportion of 1:3. In the set, the hair dyeing base and the developing liquid are supplied in equivalent quantities.

Hydrophylic Suspension Vehicles

The versatility of sodium carboxymethylcellulose (CMC) as a suspending agent reports S. W. Goldstein (*J.A.Ph.A.*, Pract. Ed. 13:550, 1952) has been utilized in the preparation of 34 pharmaceutically satisfactory dermatologic products. These products can be prepared without heat and in a reasonable period of the compounder's time. Formulas have been developed for suspension vehicles that can be prepared for extemporaneous use or for use as stock vehicles in which prescribed dermatologic medicinals can be suspended. The vehicles are neutral when unbuffered and they can be buffered in the acid range to about *p*H 4.5.

Thus, a convenient stock vehicle for hydrophilic film-forming suspensions is prepared from the following formula:

Sodium carboxymethylcellulose, Type 70, medium	**21.0 Gm.**
Water	**935.0 cc.**
Dioctyl sodium sulfosuccinate, 1% solution	**65.0 cc.**
Liquefied phenol	**1.0 cc.**
Polyoxyethylene sorbitan monolaurate (Tween 20)	**0.3 cc.**

Place 700 cc. of water in the mixing vessel, start the stirrer, add the CMC-M slowly and stir until clear. Add the remaining 235 cc. of water, 65 cc. of one per cent dioctyl sodium sulfosuccinate solution, 1 cc. of liquefied phenol and 0.3 cc. of Tween 20, mix well, then bottle.

A vehicle for dermatologic preparations buffered at about *p*H 4.5 is prepared from the following formula:

Sodium carboxymethylcellulose	**20.0 Gm.**
Disodium phosphate, Anhyd.	**10.0 Gm.**
Citric acid	**10.0 Gm.**
Dioctyl sodium sulfosuccinate, 1% solution	**65.0 cc.**
Water	**935.0 cc.**
Liquefied phenol	**1.0 cc.**

Dissolve the disodium phosphate and citric acid in 235 cc. of water, add this solution to the CMC-M dispersed in 700 cc. of water, then add the dioctyl sodium sulfosuccinate solution and liquefied phenol.

It is noted, in connection with this formula, that 30 cc. of glycerine is added with the medicinal agent unless it is expressly omitted from the final formula. This glycerine addition aids in the formation of the primary smooth paste with insoluble materials. When a sufficient volume of alcohol is added with the medicinal agent, the glycerine is not required for its effect on the film formation of the product.

A stock buffered vehicle can be prepared by the addition of 0.12 per cent of polyoxyethylene sorbitan monolaurate (Tween 20) to the buffered vehicle.

It has been found that when applied to dermal surfaces in thin layers, these suspensions dry in 3 to 5 minutes to form hydrophilic films which can be removed by gentle washing with water.

Cream Nail Polish Removers

According to V. Basic (*Soap, Perf. & Cosmetics* 25:935, 1952) cream nail polish removers have many advantages compared with liquid removers. Their application is easier and they are more economical. They do not run off the nail and cotton wool; coloring cuticles and fingers after dissolving the polish. A possible disadvantage is that it takes longer to remove nail polish with cream remover than with liquids, but on the other hand they leave nails shiny, not dull and matt. The solvent, being in an emulsified state, does not have such a strong defatting action as is the case with liquid removers and the nails do not suffer so much from brittleness.

The formulation of cream nail polish removers is not complicated and success depends on finding the proper solvent and emulsifying agent. There is a wide choice of suitable solvents, such as amyl acetate, n-butyl acetate and glycol ethers, which can be used alone or in admixture. Many solvents have been tried, but n-butyl acetate gives the best result. It has a pleasant odor, does not irritate the skin, its vapors are nontoxic, and it has a boiling point of 126.5° C. The amount of solvent should not be higher than 70 per cent, because with a higher amount the cream becomes liquid at increased room temperature. In regard to emulsifying agents, the choice is also wide.

As an example, Vasic offers the following formula for a very stable cream nail polish remover:

Stearic acid	**9.0 parts**
Castor oil	**2.0 "**
Triethanolamine	**3.5 "**
Butyl acetate	**70.0 "**
Water	**15.5 "**

Another somewhat slower - acting polish remover is made from:

Emulsifying wax (Lanette Wax SX)	**16.0 parts**
Polyoxyethylene sorbitan monostearate (Tween 60)	**3.5 "**
Castor oil	**1.5 "**
Butyl stearate	**1.5 "**
Butyl acetate	**61.5 "**
Water	**16.0 "**

The general manufacturing procedure for making these creamy polish removers consists of melting the emulsifying agent, castor oil and butyl stearate in a jacketed pan and then adding the solvent. When all is dissolved the temperature is raised to 65° C. and then water

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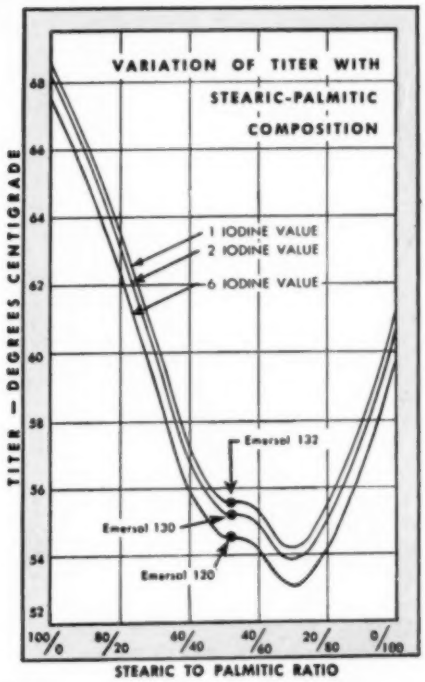

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is added, which has been warmed separately to about the same temperature, and the whole stirred constantly while slowly cooling. Stirring is continued until practically room temperature is attained. Rapid cooling should be avoided and it is particularly necessary to ensure steady stirring through the temperature range 50°-40° C.

Vasic advises that cream nail polish removers are best packed in tubes, either pure aluminum or tinned-lead. Because of the effect of the solvents, the tubes should not be coated with ordinary lacquer, but with a special lacquer resistant to the solvent action, or else the tubes should be plain.

Antipruritic Tar Application

T. S. Saunders (*Arch. Dermat. & Syph.* 65:484, 1952) found that the following lotion provided prompt and satisfactory relief in 12 of 14 cases of anogenital itching:

Coal tar solution	**6 cc.**
Tincture of benzoin, plain	**12 cc.**
Acetone, to make	**60 cc.**

Because of its irritating properties, this lotion is limited to noninflamed, nonexcoriated areas.

Therapeutic Lotions

In the opinion of W. E. McConnell (*Chem. Prod.* 11:391, 1952), trends in preferences for certain cosmetics indicate that lotions are gaining favor with the public. If this is true, a general preference for medicinal lotions over ointments may also be expected. Many patients will prefer lotions because this type of preparation is composed largely of water and will not leave as much residue on the skin as do emulsified creams. In most instances, this residue will not even be visible, depending upon the amount of massage applied and the nature of the medicinal agent which is admixed in the lotion base. The risk of soilage to clothing will be lessened and, even if clothing does become soiled from the lotion, its removal from garments should not be difficult because of the high proportion of surface-active agent present in the residue. Lotions require less massage during application, hence they are less unpleasant to apply to painfully irritated or denuded surfaces. They may have enhanced therapeutic properties because the concentration of the medicinal agent in the residue remaining on the skin after evaporation of the water will be considerably greater than in the case of creams or ointments.

According to McConnell, the ideal lotion vehicle should possess most of the following qualities: (1) It should have an appearance similar to accepted cosmetic lotions, *i.e.*, opaque white or light cream color. (2) It should be of a consistency which allows easy spreading on the skin, easy pouring from the bottle without shaking (*i.e.*, not thixotropic), and of sufficient viscosity to act as a suspending medium for insoluble medicaments. (3) It should have no objectionable odor when not perfumed. (4) It should apply to the skin without "sweating" or breaking of water from the emulsion. (5) It should be emollient in itself, but not greasy. (6) It should not remain wet on the skin long after application with gentle massage but should not be so rapid-drying that it dehydrates the skin. (7) It should be capable of being washed off the skin with water. (8) It should be neutral, or nearly so, in reaction and should be nonirritating. (9) It should contain a minimum number of ingredients and all ingredients should be of known composition and purity and readily available to the pharmacist. (10) It should be economical to prepare and easily compounded by the pharmacist, both extemporaneously and for stock, requiring no special equipment. (11) It must of necessity be compatible with as many chemicals and drugs as possible.

In the formulation of a lotion vehicle, consideration must be given to a number of factors. The overall objective is to produce a base which is inherently stable and is compatible with a large number of dermatological medicinal agents, all this in keeping with its suitability for use on the human skin, both normal and diseased. An emulsion, rather than a pseudo-emulsion, or suspension, is preferred. Emulsions offer the greatest possibilities for the successful incorporation of both oil- and water-soluble materials. There is general agreement that water-in-oil emulsions are much inferior as lotion bases to oil-in-water emulsions, simply because the former type more nearly resembles the hydrocarbon base ointments, hence, has the same disadvantages.

It has been shown that a combination of two or more suitably selected emulsifying agents will do a better job of emulsification than the same quantity of a single one. Generally, the use of one agent which is predominantly water-soluble, in combination with a second agent, predominantly oil-soluble, will result in an emulsion having much greater stability characteristics than one prepared with either agent alone. The concentration of emulsifying agent present in the final emulsion often is a factor in determining its stability. It has been recommended that the concentration of the emulsifier should be from 10 to 20 per cent of the oil phase present. This may seem to be rather a high concentration but there is evidence that an excess of emulsifying agent is advantageous. Such excess accumulates in the external phase of the emulsion and tends to increase the viscosity of the system. It also acts as a buffer to take up any electrolyte which may be added and it prevents reaction with, or salting out of, the interfacial layer with consequent breaking of the emulsion.

The aqueous phase of an emulsified lotion will be made up largely of water plus added ingredients such as alcohol, for more rapid drying of the lotion after application, and either glycerine, propylene glycol, sorbitol, or some other compound, to act as a humectant. As a rule, a preservative, one or more of the esters of *p*-hydroxy-benzoic acid, will be included, though it may not be entirely in the aqueous phase.

The possibilities for variation of the ingredients making up the oil phase are virtually unlimited. If the lotion is to be a true emulsion, the bulk of the oil phase will consist of an oil. Any one of a number of different oils might be used. Other ingredients included in the oil phase are usually present for the purpose of increasing the viscosity of the emulsion, thus preventing creaming. Stearyl or cetyl alcohol is often used for this purpose. The various water-soluble cellulose derivatives have been used to increase viscosity. White beeswax, dissolved in the oil phase, has been successfully used to impart increased stability to lotion vehicles. Lanolin is very often used in lotions for its emollient effect and because of the increased stability which it imparts to emulsions. Also, it has been found valuable for preventing "sweating" of the emulsion on application to the skin.

Other additives may be present for the purpose of modifying various characteristics of the lotion such as appearance, applying qualities, consistency, and the like. The possibilities are almost limitless. However, McConnell stresses that keeping the number of ingredients in the formula to a minimum will simplify the task of formulation and will result in a lotion vehicle which has fewer opportunities for the formation of incompatibilities.

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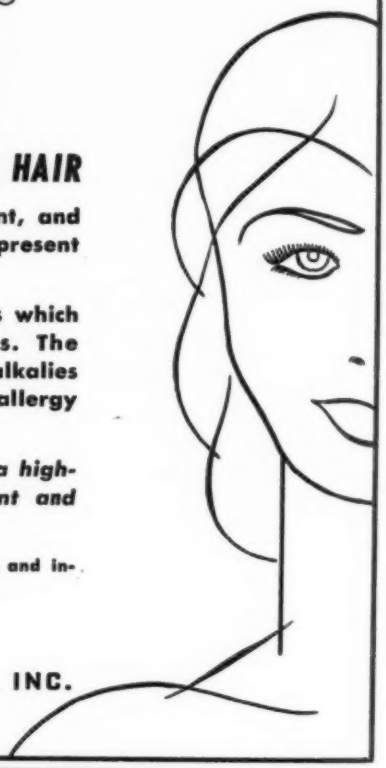

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Patent Thoughts and Trends

*by Thomas Cifelli, Jr.**
PATENT ATTORNEY

PROSPECTS FOR PATENTS

Those interested in the U. S. Patent System can look forward to 1953 with confidence. Indeed, this year might well become a milestone in the field of patents. Two factors which may contribute in large measure to this result will be briefly noted.

In the first place, the new Patent Codification Act, it will be recalled, went into effect the first of this year. While it does not appear to contain any radical innovations there appears to be unanimity among those who should know that the Act ought to strengthen the patent system. Some of the highlights of the Act were noted in the August issue of This Journal.

The second factor is the trend to a better reception being accorded patents by the courts. This trend, which has been discernible during the last few years, may well develop into full flower in 1953. The November elections may have a psychological effect in this direction.

The importance of this last factor could be magnified very easily, as we must not forget that the Federal Judges who will decide the patent cases during the next few years will be exactly the same ones who are deciding these cases today. It may be unrealistic, therefore, to expect an overnight change of attitude on the part of the Federal Judges. Yet, I think it was the late Justice Holmes who said that judges watch the election returns.

The one sure prediction regarding the prospects for patent owners in 1953 is that the fellow who owns a patent on a real meritorious invention has better prospects than the chap whose patent covers an invention of questionable standing.

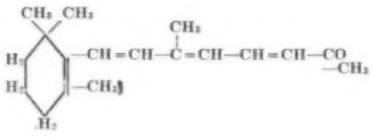
The moral of all this is clear: while patent prospects in general are definitely looking up, the best prospects will go to those with the best inventions.

A banner crop of patents was recently issued in the drug and cosmetic fields. A few thought to be of general interest, not necessarily because they are the most important, will be reviewed here. These patents deal with the synthesis of vitamin A and hair waving agents.

Vitamin A Synthesis

The synthesis of vitamin A is not exactly new these days, several patents and publications during the last five or six years having dealt with this problem. A. C. Starke has just won U. S. patent No. 2,615,922 (assigned to General Aniline) on his method, which involves starting from the C_{18} ketone disclosed by the Dutch workers, Van Dorp et al.

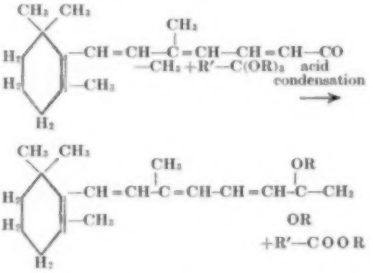
The C_{18} ketone has the formula:



Sharpe treats this ketone with an ortho-ester of a carboxylic acid, especially an ortho-formate, to form the corresponding ketal. The latter is then condensed with a vinyl ether in the presence of an acid condensing agent, to form an ether acetal, which yields vitamin A aldehyde upon hydration and dealcoholation. Vitamin A is obtained upon reduction of the aldehyde.

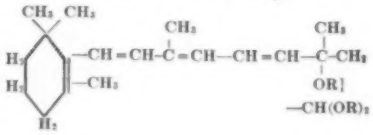
The reactions involved in the procedure of this invention are as follows:

1. Reaction of the C_{18} ketone with an orthocarboxylic ester:



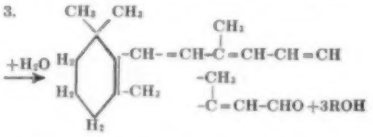
(R being an alkyl group, and R′—CO— representing the radical of an organic carboxy acid).

2. $+R-O-CH=CH_2$ acid condensation

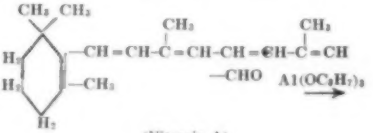


(the R's representing alkyl groups).

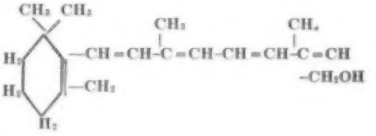
3.



The aldehyde thus produced can be reduced to vitamin A, e. g. by reaction with aluminum isopropylate, as indicated by the following reaction:



(Vitamin A)



Hair Waving

Procter & Gamble recently obtained three patents dealing with hair waving preparations. These patents are U. S. 2,615,782, 2,615,783 and 2,615,828.

U. S. 2,615,782 deals with treating reduced keratin with at least one organic thiosulfuric acid or water-soluble salt to convert the reduced keratin to disulfide containing the organic group of the organic thiosulfate. The reduced keratin may be formed by treating the keratin with a mercaptan. If desired, the hair may be treated with both the reducing agent and thiosulfate simultaneously.

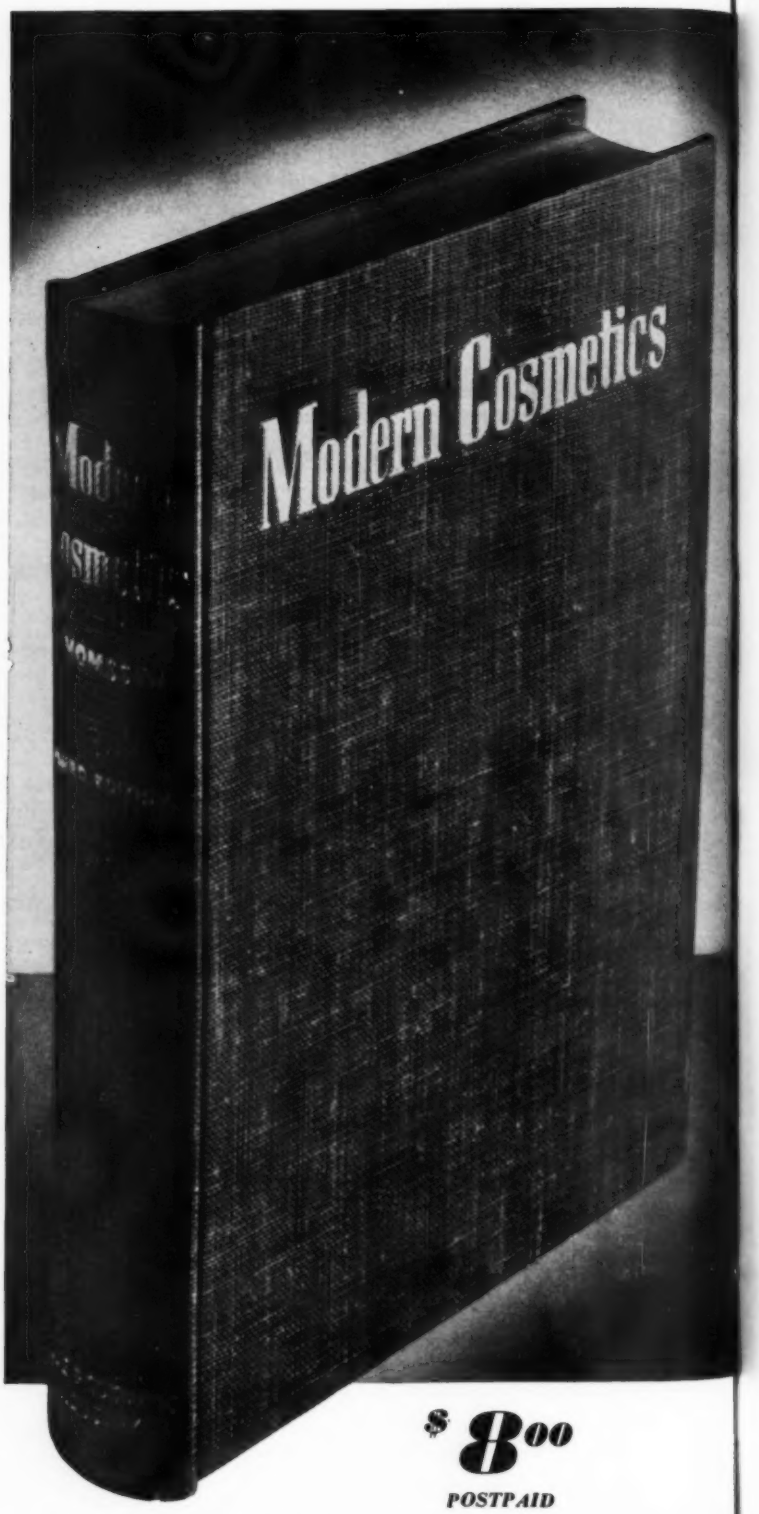
U. S. 2,615,783 is similar to U. S. 2,615,782 except that a poly-functional organic thiosulfate is employed.

U. S. 2,615,828 is specifically directed to the use of solutions of a mercaptan and organic thiosulfate to obtain a one

*Gaylor, Cifelli & Jurick, Newark, N. J.

THE THIRD EDITION OF

MODERN COSMETICS



MODERN COSMETICS, published by the Drug & Cosmetic Industry, was the first book on the formulation and manufacturing procedure of cosmetics to be published in America. It was an immediate success. In two previous editions eight thousand copies were sold in America and in forty-two foreign countries.

The Second Edition of MODERN COSMETICS has been out of print for three years. During that time we have received more that a thousand inquiries for this work. But rather than bring out a hurry-up job to meet the urgent demand we decided to wait.

E. G. Thomssen, B.S., A.M., Ph.D., Chemical Consultant, Author of "Soap Making Manual," "Modern Soap Making," and well known contributor to Technical literature, was engaged to completely rewrite this new Third Edition—to bring to it all the new developments of the past ten years in manufacturing instructions, materials, and formulas.

To those who have made MODERN COSMETICS their handbook we say—this new edition will be infinitely more useful to you, because of the scope of new material, new tested formulas, and the correction and modernization of the procedure in formulation.

Chemist, factory manager, perfumer, owner—anyone interested in cosmetics will find MODERN COSMETICS a valuable help in business. It is a technical book, filled with formulas, procedure, manufacturing practices, yet so clearly and simply written that even one not connected with the industry can understand its text.

The most experienced chemist or factory manager will find in its wealth of information, useful methods new to him. The inexperienced man or woman who wants a clear understanding of the industry, wants to know something about how cosmetics are made, who is working on a small scale with the handicap of little experience or knowledge, will find the book easy to understand, a great help and guide.

To those who wish to procure MODERN COSMETICS, to the newcomers in the industry, we say—here is a book that, because of its completeness, the simple and easily followed instructions, the clearness with which every problem and every phase of cosmetic manufacture is discussed, the authority of a standard work, is well worth its weight in gold to you. For with it, you have a firm, thorough understanding of cosmetic manufacturing.

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by **E. G. THOMSSEN**
B.S. A.M. Ph.D.

644 Pages — 70 Chapters

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DRUG & COSMETIC INDUSTRY

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step waving of hair. This patent has a very detailed disclosure and may therefore be of special interest to the reader.

The patent, based on the invention of J. W. Haefele, points out that even the most successful and popular of mercaptan hair softening agents such as thioglycerol and thioglycolic acid render the hair harsh and lower the tensile strength if allowed to remain in contact with the hair for an extended period. Thus in using the readily available commercial solutions of thioglycolic acid which contain the equivalent of about six per cent of the pure acid by weight, a maximum contact time of 3 hours is usually recommended for coarse hair, and shorter times such as ½ to 2 hours are recommended for hair of fine texture.

Haefele found that the asserted disadvantages of mercaptans alone are eliminated by incorporating in the solution of mercaptan of the general formula, RSH, one or more water-soluble salts of organic thiosulfuric acids of the general formula $R'SSO_3H$ wherein each of the symbols, R and R', represents a monovalent organic radical which is free of the concomitant presence of a carboxyl group and an amino group, and in which the free valence is on an aliphatic carbon atom. These thiosulfates react with the mercaptans to form a certain quantity of disulfides and bisulfites until an equilibrium is reached for the reaction

$$RSH + R'SSO_3X \rightleftharpoons R'SSR + XHSO_3$$

where X represents a monovalent salt-forming radical.

Because of this equilibrium reaction the aqueous solutions can be prepared by dissolving the appropriate organic disulfide (RSSR') and a water-soluble sulfite reducing agent such as normal sulfites in place of the direct solution of mercaptan (RSX) and thiosulfate ($R'SSO_3X$).

Representative detailed examples, taken directly from the patent follow:

EXAMPLE 1

A solution of glyceryl thiosulfate was prepared by heating together in aqueous solution equimolar quantities of glycerin alpha monochlorhydrin and hydrated sodium thiosulfate of the formula $Na_2S_2O_3.5H_2O$. The resulting solution contained about 32.3 per cent glyceryl thiosulfate and 8.8 per cent sodium chloride by weight. This solution was used in making up a composition as follows:

6.0 parts thioglycerol (0.055 mole)
12.4 parts of the above solution (i. e. 4 parts or 0.019 mole sodium glyceryl thiosulfate and 1.1 parts sodium chloride)
81.6 parts water and ammonium hydroxide (28 per cent NH_3 by weight) to bring to a pH of 9.3.

The above composition represents a solution, the potential concentration of mercaptan in which is about 0.63 molal, and the potential concentration of thiosulfate in which is about 0.22 molal or 35 molar per cent of the mercaptan concentration. Some solution of this composition was used to saturate two strands of 12 human hairs each, each strand being 100 mm. in length from knot to end and being wound on a curler having a diameter of 6.5 mm. One strand was exposed to the solution for 10 minutes at 100° F. and the other strand was exposed for 16 hours at 80° F. In each case, at the end of exposure, the solution was rinsed from the strand of hair which was then treated with a one per cent solution of sodium chlorite to set or fix the curl before it was unwound.

As a basis for comparison the same procedure was carried out on two comparable strands of hair with the use of a six per cent solution of thioglycerol at pH 9.3, no organic thiosulfate being present.

The following observations were made in connection with the curls formed in the comparison of this example.

Solution	Diameter of curl in mm. after exposure for— 10 min. at 100° F.	16 hours at 80° F.	Coil length of Curl in mm. after exposure for— 10 min. at 100° F.	16 hours at 80° F.
Mixture of thioglycerol and glyceryl thiosulfate of this example	7.5	[1] 6.0	28	[1] 29
Thioglycerol alone	6.9	[2] 6.9	32	[2] 67

[1] Qualitatively the hair of this curl was not perceptibly damaged.
[2] Qualitatively the hair of this curl was harsh and broke or tore readily when only a slight tension was applied. The greater coil length noted here is also indicative of this greater damage.

EXAMPLE 2

A solution of glyceryl thiosulfate was prepared as in Example 1 by heating together in aqueous solution equimolar quantities of glycerin alpha monochlorhydrin and hydrated sodium thiosulfate, $Na_2S_2O_3.5H_2O$. The resulting solution contained about 33.2 per cent glyceryl thiosulfate and 8.8 per cent sodium chloride. This solution was used in making up a composition as follows:

6.1 parts thioglycerol (0.056 mole)
50.5 parts of the above solution of glyceryl thiosulfate (i. e. 16.3 parts or 0.077 mole sodium glyceryl thiosulfate and 4.4 parts sodium chloride)
43.4 parts water and ammonium hydroxide (28 per cent NH_3) to bring to a pH of 9.3.

The above composition is potentially about 0.77 molal in mercaptan and about 1.06 molal in thiosulfate, the potential thiosulfate therefore being about 138 molar per cent of the potential mercaptan. This solution was used to saturate 3 strands of 12 human hairs each, each strand being 100 mm. in length from knot to end and being wound on a curler having a diameter of 6.5 mm. One strand was exposed to the solution for 30 minutes at 100° F., another strand was exposed for 16 hours at 80° F., and the third strand was exposed for 80 hours at 80° F. In each case, at the end of the exposure the solution was rinsed from the wound strand of hair which was then treated with a one per cent solution of sodium chlorite to set or fix the curl.

Each strand of treated hair was removed from its curler and permitted to assume a circular curl without assistance from external forces. The following observations were made on these curls.

Time	Temperature ° F.	Diameter of Curl in mm. after Exposure	Length of Coil in mm. after Exposure
30 min.	100	8.4	37
16 hrs.	80	7.2	38
80 hrs.	80	7.0	42

These data show reasonable tightness of the curl and little damage to the hair in the 30 minute period of exposure at 100° F. They also show an improvement in tightness of curl with but very little increase in damage by exposure times of 16 and 80 hours respectively at 80° F. Visual examination of the curls produced by this example indicated no perceptible damage.

As a basis of comparison, it is to be noted that the six per cent solution of thioglycerol at pH 9.3 and containing no organic thiosulfate produced a curl of about 6.9 mm. diameter and 67 mm. coil length after exposure for 16 hours at 80° F. as was shown in Example 1. Qualitatively the curl of hair so formed was harsh, and broke or tore readily when only slight tension was applied.

In place of the 50.5 parts of the glyceryl thiosulfate solution in the above

(Continued on page 120)

Animal Health

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The greatest value of estrogen pellets comes from improved fat finish in young birds. Feed efficiency is not improved nor is weight gained faster by their use. Quality of meat in chicken dryers and broilers is improved, and hormonized chickens usually bring a premium price. The cost for injection is approximately 1 cent per pound and the increased cost to the consumer is as much as 5 cents per pound.

There is probably less advantage in using diethylstilbestrol for turkeys than for chickens It is generally agreed that female turkeys do not improve as much by its use as do males. Two desirable results follow its use: (1) fewer pin feathers develop, and (2) more fat is deposited under the skin The drug may be used to aid in earlier finishing of turkeys.

Evaluation of Antibiotics for Stimulating Rate Gain in Pigs

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Although 3-nitro-4-hydroxy phenylarsonic acid has some activity to improve performance, it failed to exert a significant complementary effect with aureomycin for stimulation of growth in swine.

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Under controlled conditions, P. P. Levine and J. Fabricant (*Cornell Vet.*) performed two experiments to test the efficacy of commercial Newcastle disease vaccines. In each experiment six lots of birds were kept in individual pens of a virus isolation building. Two lots were vaccinated at 1 day of age with intranasal vaccine and wing-web vaccine, respectively. Two lots were vaccinated at 4 weeks with two different brands of wing-web vaccine, respectively. One lot was vaccinated intramuscularly with killed vaccine (alum-precipitated). The sixth lot served as the unvaccinated control. At 8 weeks of age all the birds, including the controls, were challenged with a virulent strain of Newcastle virus intratracheally.

With the exception of one lot of impotent wing-web vaccine, the live-virus vaccines induced from fair to good protection against the challenge infection. The killed vaccine failed to protect the birds in both trials.

From 66 to 94 per cent of the wing-web vaccinated birds had positive H.I. (hemagglutination - inhibition) titers and, with two exceptions, resisted challenge. However the birds with the negative H.I. titers were more resistant to the virulent infection than the unvaccinated controls. There was no relationship between the H.I. titers and resistance to challenge in the birds vaccinated by the intranasal method. Little or no postvaccination mortality occurred except in the day-old chicks vaccinated by the wing-web method. Although these chicks originated from vaccinated dams, no parental H.I. antibodies were found in their sera. This might account for the death loss of 26 per cent they suffered.

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These bright-looking calves will usually recover with vitamin E therapy or if fed grains or if the dam receives a ration containing vitamin E. Treatment for pneumonia has been credited with assisting the recovery of some of the calves but usually the ration has been improved simultaneously.

According to Houle, two methods of effective prevention are possible. One is to feed vitamin E in the roughage or in a mixed grain ration. This is costly because of the equipment needed for different roughage processing and the cost of additional grains. Furthermore, many calves will not eat enough ration while suckling, to prevent the deficiency. A successful method is the oral administration of pure *alpha* tocopherol to each calf once or twice a week at the rate of 1,000 mg. per dose. This procedure is relatively inexpensive to follow and may be carried out by the owner at his convenience. When deficiency becomes apparent in some calves, *alpha* tocopherol should be administered in the same dosage daily for two or three days to all calves on deficiency rations.

It is also noted that the administration of vitamin A, calcium, and iodine seems to reduce the vitamin E requirements of the body. Hence, these substances should be added to the ration of the brood cows when indicated.

Antibiotics and Protein Requirements of Chickens

The results of experiments carried out by S. J. Slinger, J. E. Bergey, W. F. Pepper, E. S. Snyder and D. Arthur (*Poultry Sci.* 31:757, 1952) do not support the conclusion that the requirement for either protein or energy is reduced by the presence of antibiotics such as penicillin or aureomycin. This is attributed to the fact that the utilization of both protein and energy was enhanced by including antibiotic in the diet. It may well be that all nutrients are utilized better in the presence of antibiotic. This being the case, one would not expect antibiotic to influence nutritive requirements when fed with properly balanced diets. The protein requirement for maximum weight and feed efficiency in these experiments was in excess of 20 per cent in both the absence and presence of antibiotic. However, the protein requirement for the production of broilers with suitable market quality was less than for maximum weight and feed efficiency. It is suggested that heavy-breed male broilers be fed diets containing in excess of 20 per cent protein during the growing period and that the level be reduced to 20 per cent or less for a finishing period of a few weeks.

Similarly, in the work done by J. Biely, B. E. March and D. F. Smith (*Poultry Sci.* 31:863, 1952) the growth stimulating effects of aureomycin and penicillin have been studied in chicks fed rations containing various levels of available carbohydrate, protein, lysine and tryptophan. From the data obtained it has been concluded that: 1. Antibiotics do not have a sparing action on the carbohydrate requirements of the chick. 2. Antibiotics do not lower the dietary level of protein required by the chick. 3. Antibiotics have a greater stimulatory action with rations which are well balanced in amino acids than with rations deficient in some amino acid. 4. In order to take full advantage of the growth stimulating properties of antibiotics it is necessary to provide a diet of high energy and optimum protein content, as well as one well balanced in amino acids.

New Growth Factor for Chicks

In a paper delivered at the 41st Annual Meeting of the Poultry Science Association (through *Poultry Sci.* 31: 910, 1952) D. S. Carver and E. L. Johnson reported that semi-purified "fat-free" diets were used to study the fat requirement of the chick. One diet contained vitamin-test casein while the other contained Drackett industrial soybean protein. Each diet contained adequate levels of all known vitamins. The soybean protein basal produced approximately 20 per cent greater growth of chicks than the casein basal diet. When the casein diet was supplemented with a crude linoleic acid concentrate at levels as low as 0.83 per cent, symptoms resembling nutritional encephalomalacia and high mortality resulted after two weeks. High levels of corn oil and soybean oil did not produce these adverse effects. The adverse effects obtained with casein protein and the linoleic acid concentrate were not observed when the concentrate was included in the soybean protein basal. In fact, a 20 per cen increase in chick growth resulted. Supplementing the soybean protein basal diet with either crude corn oil, refined corn oil, soybean oil, wheat germ oil, oleic acid concentrate or linoleic acid concentrate stimulated chick growth as much as 30 per cent. The oleic acid concentrate was superior to other oils in promoting growth.

From these data, Carver and Johnson conclude that either the chick has a dietary requirement for specific fatty acids, or for an unknown vitamin(s) present in vegetable oils, or both.

Glycerine for Pregnancy Toxemia in Ewes

In describing outbreaks of pregnancy toxemia in two flocks of ewes, W. R. Griffith (*Vet. Rec.* 64:734, 1952) observes that treatment of this condition is generally considered useless. Nevertheless, because it is well known that a disturbance of carbohydrate metabolism is a feature of this disease and because glycerine can enter into the carbohydrate cycle and be converted into glycogen and glucose, it was decided to try oral administration of glycerine for therapeutic purposes. Glycerine was given by mouth in doses of 4 ounces mixed with equal quantities of water with some chlorodyne added. The results were "remarkably good." In many cases, ewes previously affected were grazing in about one hour, while those severely ill and recumbent on their sides were able to walk in 1½ to 2 hours. Relapses sometimes occurred, but these responded to further therapy. The mixture was administered warm in order to pass straight to the obomasum, thereby hastening recovery. In one flock, 11 out of 12 cases and in the other three out of four cases of pregnancy toxemia recovered after treatment with 4 ounces of diluted glycerine.

Neomycin for Mastitis

The investigations made by A. R. Drury (*Vet. Med.* 47:407, 1952) showed that neomycin *in vitro* at levels of 0.01 to 0.155 micrograms per ml. inhibited the growth of the six most common causative microorganisms associated with infectious bovine mastitis. Results of this study with neomycin indicate a minimum of local irritation in the udder as judged by leukocyte counts, chloride content, resazurin class, pH and strip cup observations. The agent was found to remain in the udder for 72 hours or longer when an aqueous solution was infused. Neomycin, when injected intramuscularly, was found to give demonstrable blood levels for at least eight hours.

The results in treating 405 cases of mastitis indicate this drug to be effective against infections caused by streptococci, staphylococci, coliforms and a yeast. Neomycin was also of value in eight of 14 Pseudomonas infections. There appeared to be no difference in the effectiveness of neomycin when employed in either an aqueous or water-miscible base.

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Similarly, in the work done by J. Biely, B. E. March and D. F. Smith (*Poultry Sci.* 31:863, 1952) the growth stimulating effects of aureomycin and penicillin have been studied in chicks fed rations containing various levels of available carbohydrate, protein, lysine and tryptophan. From the data obtained it has been concluded that: 1. Antibiotics do not have a sparing action on the carbohydrate requirements of the chick. 2. Antibiotics do not lower the dietary level of protein required by the chick. 3. Antibiotics have a greater stimulatory action with rations which are well balanced in amino acids than with rations deficient in some amino acid. 4. In order to take full advantage of the growth stimulating properties of antibiotics it is necessary to provide a diet of high energy and optimum protein content, as well as one well balanced in amino acids.

New Growth Factor for Chicks

In a paper delivered at the 41st Annual Meeting of the Poultry Science Association (through *Poultry Sci.* 31: 910, 1952) D. S. Carver and E. L. Johnson reported that semi-purified "fat-free" diets were used to study the fat requirement of the chick. One diet contained vitamin-test casein while the other contained Drackett industrial soybean protein. Each diet contained adequate levels of all known vitamins. The soybean protein basal produced approximately 20 per cent greater growth of chicks than the casein basal diet. When the casein diet was supplemented with a crude linoleic acid concentrate at levels as low as 0.83 per cent, symptoms resembling nutritional encephalomalacia and high mortality resulted after two weeks. High levels of corn oil and soybean oil did not produce these adverse effects. The adverse effects obtained with casein protein and the linoleic acid concentrate were not observed when the concentrate was included in the soybean protein basal. In fact, a 20 per cen increase in chick growth resulted. Supplementing the soybean protein basal diet with either crude corn oil, refined corn oil, soybean oil, wheat germ oil, oleic acid concentrate or linoleic acid concentrate stimulated chick growth as much as 30 per cent. The oleic acid concentrate was superior to other oils in promoting growth.

From these data, Carver and Johnson conclude that either the chick has a dietary requirement for specific fatty acids, or for an unknown vitamin(s) present in vegetable oils, or both.

Glycerine for Pregnancy Toxemia in Ewes

In describing outbreaks of pregnancy toxemia in two flocks of ewes, W. R. Griffith (*Vet. Rec.* 64:734, 1952) observes that treatment of this condition is generally considered useless. Nevertheless, because it is well known that a disturbance of carbohydrate metabolism is a feature of this disease and because glycerine can enter into the carbohydrate cycle and be converted into glycogen and glucose, it was decided to try oral administration of glycerine for therapeutic purposes. Glycerine was given by mouth in doses of 4 ounces mixed with equal quantities of water with some chlorodyne added. The results were "remarkably good." In many cases, ewes previously affected were grazing in about one hour, while those severely ill and recumbent on their sides were able to walk in 1½ to 2 hours. Relapses sometimes occurred, but these responded to further therapy. The mixture was administered warm in order to pass straight to the obomasum, thereby hastening recovery. In one flock, 11 out of 12 cases and in the other three out of four cases of pregnancy toxemia recovered after treatment with 4 ounces of diluted glycerine.

Neomycin for Mastitis

The investigations made by A. R. Drury (*Vet. Med.* 47:407, 1952) showed that neomycin *in vitro* at levels of 0.01 to 0.155 micrograms per ml. inhibited the growth of the six most common causative microorganisms associated with infectious bovine mastitis. Results of this study with neomycin indicate a minimum of local irritation in the udder as judged by leukocyte counts, chloride content, resazurin class, pH and strip cup observations. The agent was found to remain in the udder for 72 hours or longer when an aqueous solution was infused. Neomycin, when injected intramuscularly, was found to give demonstrable blood levels for at least eight hours.

The results in treating 405 cases of mastitis indicate this drug to be effective against infections caused by streptococci, staphylococci, coliforms and a yeast. Neomycin was also of value in eight of 14 Pseudomonas infections. There appeared to be no difference in the effectiveness of neomycin when employed in either an aqueous or water-miscible base.

Perfumer's Shelf

Ethereal Oils from Poland

In studies of the properties of ethereal oils produced from native sources, I. R. Klimek (*Roczniki Panstwowego Zakladu Hig.* 1:390, 1950 through *Chem. Abstr.* 46:9799, 1952) determined the physical and chemical constants of oil of peppermint, calamus, angelica and fir. Such determinations were made on two samples of *Mentha piperita* taken from the same field. One underwent a spontaneous rise of temperature, and it gave about 50 per cent more oil than the other sample, but the oil contained less menthol. The second sample gave 0.21 per cent oil, which is about 50 per cent more than reported in the literature. Two samples of *Acorus calamus* were fractionally distilled. The fraction which came over during the first 3 hours contained the aromatic substance characteristic of calamus; the fraction which came over during the next 3 hours (about half as much as the first fraction) had a pleasant, lasting, balsamic aroma, similar to the aroma of vetiver oil from *Veliveria zizanoides.* Distillation of sprigs and needles of fir (*Abies alba*) chopped into ten-mm. pieces gave 0.7 per cent oil, which is 50 per cent more than reported in the literature. Its specific gravity was 0.9005, and its specific rotation was —32.38°. These values also differ from those given in the literature, and it is recommended that the accepted norms be widened. The constants for oil from the dry root of *Angelica silvestris,* not previously reported in the literature were:

Yield	0.6%
Specific gravity	0.9300
Specific rotation	X18.71°
Index of refraction	1.4892
Acid number	5.48
Ester number	40.01
Ester number, after acetylation	89.64

The oil was brown in color, had a bitter taste and its aroma was peculiar to angelica. It was miscible in all proportions in 90 per cent alcohol at 15° C. and soluble in 100 times its own volume in 70 per cent alcohol at 15° C. with a slight turbidity.

Camphor and Camphor Oil in India

According to D. R. Dhingra, T. N. Gangoo and G. N. Gupta (*Indian Soap J.* 17:85, 1951) experimental cultivation of *Ocimum kilimandscharicum* has been undertaken in India. The moisture content of the leaves was 80 to 83 per cent and the combined camphor and camphor oil content (based on the dried leaves) was 3.20 to 4.71 per cent. The oil content of the flowers was also determined and they were found to contain 75.9 per cent of moisture and 1.8 per cent (dry basis) of camphor oil. Two samples of camphor oil had the following properties:

	I	II
Specific gravity	0.9209	0.9180
Index of refraction	1.4745	1.4750
Specific rotation	30° 10′	28° 14′
Acid value	1.22	0.217
Ester value	75.7%	27.3%
Aldehydes (bisulfite method)	3%	3%
Camphor	39.47%	36.6%

Both samples of camphor oil were freely soluble in 80 per cent ethyl alcohol and contained mostly terpenes, sesquiterpenes, linalool and camphor. Cineole, safrole, methylcinnamate and phenol were not present.

Terpineol

In a discussion on the usefulness of alcohols, appearing in the *Perfumery and Essential Oil Record* (43:275, 1952) attention is drawn to the role of terpineol. It is noted that the name terpineol, was originally given to the mixture of alcohols obtained when terpin hydrate or terpin, a material obtained from turpentine, was treated with dehydrating agents. This was later shown to be a mixture of three closely related bodies and these are designated as α, β and δ-terpineols. The α variety is usually described as having a lilac-lily note while the β variety possesses an odor with a slight hyacinth bias.

Terpineol is probably one of the most versatile of common synthetics used in the blending of perfumery bases. It possesses the advantages of being stable to alkali and hence it can be used in soaps, and in addition it is one of the cheapest synthetics. It is used in large quantities in lilac and lily compositions. Both the d- and the l- forms of terpineol occur in nature, the d- form in oil of petitgrain and neroli and the l- form in camphor oils. It is also present in distilled lime and the negative rotation of the sesquiterpeneless and terpeneless oils of lime is due to this body. It can be fractionated out of commercial terpineol where it occurs in the higher boiling fractions and when pure is a crystalline body of melting point 35°C. The lower fractions on cooling deposited β terpineol of melting point 32-33°C. β-terpineol does not occur in nature δ-terpineol has probably only been found in nature in one essential oil.

Essential Oil of Salvia Tribola

According to A. Berk (*Farmakolog* 21: 198, 1951 through *Chem. Abstr.* 46: 11586, 1952), the plant, *Salvia tribola* grows abundantly on the hills of the warm regions of western Anatolia. The essential oil, obtained by steam distillation, is known as apple oil or mountain apple oil. It is a colorless liquid with strongly aromatic odor recalling that of cineol, and has the following constants:

Specific gravity	0.9131
Index of refraction	1.4640
Specific rotation	2.40°
Acid number	2.0
Ester number	2.4
Acetyl number	16.1

One cc. of the essence is soluble in less than 1.4 cc. of 90 per cent ethyl alcohol and in 0.7 to 1./cc. of 80 per cent alcohol, but is not soluble in 70 per cent alcohol. It contains 61.8 per cent of cineol.

Salicyl Aldehyde Reaction for Essential Oil Analysis

The salicyl aldehyde reaction, says S. Collett (*Manuf. Chem.* 23:96, 1952) is applicable to the analysis of various essential oils. In his procedure, a mixture of 0.1 cc. of the essential oil, 8 cc. alcoholic potassium hydroxide and 2 cc. of a 10 per cent solution of salicyl aldehyde in alcohol is refluxed on a steam bath for one hour, cooled, dissolved in 15 to 20 cc. of amyl alcohol and washed two times with 50 to 60 cc. of sodium

TOP NOTES by Fritzsche

FRITZSCHE BROTHERS INC

FRITZSCHE BROTHERS, INC

A THOUGHT for

"You must ha
goals to keep y
frustrated by s
ures."

FLOWER of the Month

December—Narcissus
or Holly

January—Carnation
or Snowdrop

MAYBE YOU KNOW HIM . . .

IF YOU are one of our neighbors above the Canada-U.S. border you very likely do, because he's handsome, hard working LLOYD W. SPECK, v.p. in charge of sales of our Toronto subsidiary, Fritzsche Brothers of Canada, Ltd. With the firm since 1924, few customers or prospects in all its eastern Provinces have escaped the unaffected charm of Lloyd's effective salesmanship. In the zealous pursuit of his principal duties, he has developed a secondary interest of not inconsiderable importance to those who know him intimately: *He seems to know just where the wily trout and muskies and the biggest game abound!* Add to hunting and fishing, golf, gardening and ice curling, and you have the formula that keeps this busy sales executive healthfully occupied in his all-too-limited off hours.

RECOMMENDATION of the Month

ABSOLUTE ROSE COMPOSITE F-240

There is a vast difference between *deserving* consideration and *commanding* it. Ordinarily, we would say that our ABSOLUTE ROSE COMPOSITE F-240 is fully deserving of the creative perfumer's consideration. Under present conditions of scarcity and high cost of genuine French rose absolute, we believe this outstanding replacement literally *commands* every perfumer's attention. It offers fidelity and economy that few materials can equal. Trial ounce $15.00; $240.00 for the pound.

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Ohio, Cleveland, Ohio, *Los Angeles, California, Philadelphia, Pennsylvania, San Francisco, Califo
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A THOUGHT for the Month:

"You must have long-range goals to keep you from being frustrated by short-range failures."

—NOBLE

Good Scents

FOR PERFUMERS

G.T.O. #5

he above designation identifies a ew and remarkably effective general rpose technical odorant recently leased by our laboratories after haustive tests involving many suc- ssful applications. We believe this ry powerful masking agent will ovide an economical and much eded solution to a number of the usual and unsolved odor prob- ms that still hamper the sale and iciency of certain industrial prod- ts and processes. Tell us what ur masking problem is and we'll l you whether or not* G. T. O. 5 is a possible solution.

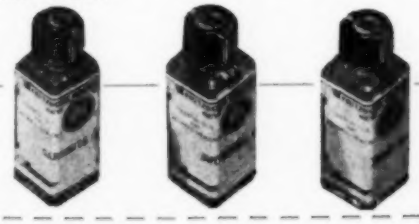
OTE: If G.T.O. #5 does not provide roper solution to your particular prob- n, we'll suggest a selection of all- oven odorants that will.

PERFUMES FOR TALCUM AND BATH POWDERS

When planning new talcums and bath powders, the chances of your product's gaining popular acceptance can be appreciably heightened by using fragrances of proven value and established acceptance. Here are a few random selections—perfumes we have developed especially for powders—that you can use with complete confidence. Save time and avoid risk by using odors of *proven* appeal.

FRENCH ORIENTAL	$12.00 lb.
GARDENIA	$ 6.50 lb.
ROSE	$ 3.75 lb.
SWEET PEA	$ 4.25 lb.
MEADOW BREEZE	$16.00 lb.
CARNATION	$ 7.50 lb.
FRENCH BOUQUET	$16.00 lb.

TRIAL OFFER: Fill in coupon below as indicated and send it to us with your check or money order for $1.00—to cover packing and handling—and we'll send you one-half ounce bottles of *any THREE* of the powder fragrances listed above.



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Gentlemen: Attached is $1.00 (check or M.O.). Please send me, prepaid, ½ oz. bottles of each of the THREE powder perfumes checked herewith:

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- ☐ *FRENCH ORIENTAL*
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- ☐ *ROSE*
- ☐ *SWEET PEA*
- ☐ *MEADOW BREEZE*
- ☐ *CARNATION*
- ☐ *FRENCH BOUQUET*

MANY AND VARIED are the problems handled each day in our laboratories for perfume, cosmetic and toilet goods manufacturers throughout the nation. Multiplying this work of our laboratories by their weeks and years of daily application, we find ourselves possessors of a rich and abundant store of knowledge covering every conceivable phase of perfuming. What this means to a customer is obvious. Briefly, it means that this great reservoir of experience is ready to draw upon at all times and that we are most favorably situated to render prompt and informed service to the customer, whatever or however perplexing his perfume problem may be.

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• MEMO •

To: PHARMACEUTICAL MANUFACTURERS WHO HAVE PROBLEMS INVOLVING FLAVORS

From: FRITZSCHE BROTHERS, Inc.

Subject: FLAVORING "KNOW-HOW"....THE KEY TO IMPROVED PALATABILITY

These words are directed to manufacturers who have problems involving flavor....which is to say ALL proprietary and pharmaceutical manufacturers, because sooner or later, most of them do have problems of unpalatability to overcome.

In the past, manufacturers went little beyond the simple technique of the corner druggist who made his less pleasant tasting prescriptions more acceptable by the addition of stock flavors like cherry, peppermint or honey.

Today, that practice is being changed. The emergence of spectacular discoveries and amazing new products from the research laboratories of this great industry has produced a remarkable change in the attitude and thinking of its members. No longer does the archaic device of a receding past serve the needs of current progress.

In no division of pharmacy is this more evident than in the manufacturers' employment of flavors. The old standbys of yesterday are rapidly giving way to newer, better and more efficient flavors....flavors developed specifically - and scientifically - to do an individual and particular job.

And here, the need is for unlimited flavoring "know-how", - a kind of knowledge built upon long experience and complete familiarity with an incredible variety of basic raw materials. Not the sort of knowledge one acquires overnight!

And so, for the important task of making the fine, ethical products of modern pharmacy more palatable to the user's taste, many of the foremost manufacturers are having their flavor research requirements fulfilled more quickly, more satisfactorily and more economically by their reliance on FRITZSCHE — specialists in the art of flavoring since 1871.

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chloride solution. This is followed by filtration and the filtrate is diluted with amyl alcohol until its absorption value can be determined in the photoelectric colorimeter. Intense reactions were obtained with caraway, lemon (terpeneless), dill, fennel, almond, cinnamon, and citronella. Less intense reactions were obtained with peppermint, cumin, lemon, eucalyptus, ginger, sandal, geranium, lilac, clove, pimento, tolu, orange, coriander, and amyris. Negligible reactions given by buchu, bergamot, celery, clary-sage, cubebs, organum, patchouli, parsley, and thyme.

More recently, Collett (*Manuf. Chem.* 23:411, 1952) has found that the salicyl aldehyde reaction can be used to determin cinnamic aldehyde in cinnamon oil and cinnamon bark. The results obtained agree fairly closely with those given by the gravimetric assay (2:4-dinitrophenylhydrazine), being slightly lower than the figures obtained by the B.P. method.

Ascaridol Determination

In searching for a precise, reliable and relatively straightforward method for determining ascaridole in oil of chenopodium, A. H. Beckett and M. Dombrow (*J. Pharm. & Pharmacol.* 4:738, 1952) investigated the possibilities of polarography. As a result the following assay method was developed: Weigh accurately 0.13 to 0.15 Gm. of oil of chenopodium into a 50-mil graduated flask, add 20 mils of lithium acetate buffer solution and dilute to 50 mils with ethanol (97 per cent v/v). Transfer a portion to a polarographic cell, deoxygenate by bubbling with oxygen-free nitrogen which has previously been passed through a wash bottle containing ethanol (97 per cent v/v). Measure the diffusion current at 20°C (± 0.5°) at an applied voltage of 1.7, using a dropping mercury cathode and large pool anode, about 2 cm. apart or less. If the diffusion current is less than 30 μA, repeat the determination using a larger weight of sample. Deduct the residual current given at 1.5 applied volts by a solvent blank, prepared and treated exactly as the above solution except that the sample is omitted. From the net diffusion current, calculate the weight of ascaridole present, either by using a calibration curve or a standard comparison solution.

Preparation of Heliotropin

The preparation of heliotropin, which is used in floral compositions like lilac, heliotrope and muguet, has been described by Schmitt in *Industrie de la Perfumerie* (through *Perf. & Essent. Oil Rec.* 43:298, 1952). In this method, heliotropin is made from safrol, which is extracted from the essence of Japanese camphor, through the intermediate stage of isosafrol. Safrol is a colorless liquid with a specific gravity of 1.105. Commercial *iso*-safrol is a mixture of two isomers; namely, *cis-iso*safrol and *trans-iso*-safrol. According to Schmitt's report, conversion of safrol to *iso*safrol is affected by alcoholic caustic potash, using the following mixture:

Ethyl alcohol, 96%	**160 kg.**
Caustic potash	**60 kg.**
Safrol	**120 kg.**

Oxidation of the isosafrol is obtained with chromic acid. By this method, 75 to 80 kg. of heliotropin are obtained from 100 kg. of safrol.

It is stressed that heliotropin should be protected from light and air and should be kept cold, otherwise it has a tendency to turn brown with time. In order to recrystallize heliotropin, 50 kg. are dissolved in 15 kg. 96 per cent alcohol, and acetic acid added at the rate of 0.2 Gm. per kg.

Infrared Spectrophotometry of Essential Oils

In a paper presented before the Society of Cosmetic Chemists on December 11, 1952, A. Presnell pointed out that infrared spectrophotometry has become a well established method in organic chemical research and in control of organic chemical processes. Use of the method in the examination of essential oils and related compounds is not new, but in the past has been largely confined to research on the composition of a few natural oils. Recently it has proved to be a valuable tool in routine examination of a wide variety of oils. Infrared spectrophotometry is most useful in the identification of chemical compounds, in proving substantial identity of two samples which may be mixtures, and in detecting adulteration. As a general rule it cannot detect materials present in very low concentrations. Because of this limitation it cannot directly indicate differences in odor in two samples of practically the same composition. There are available, however, methods of concentrating the traces of impurities which so often have a marked effect on odor. Infrared spectrophotometry is uniquely suited to the examination of the small quantities of material made available by these methods. Within certain limits it is an excellent method for determining the amounts of various substances present in mixtures.

Decyl, Undecyl and Undecylenyl Compounds

In another of his informative discussions on perfume compounds, C. Morel (*Soap, Perf. & Cosmetics* 25:848, 1952) gives consideration to the decyl, undecyl and undecylenyl derivatives. This group of compounds is characterized by a narrow range of fatty, vinous, herbal and weakly-floral odors, differing but little from each other. However, this group does possess some important physical qualities.

Following a consideration of the factors responsible for "freshness" in perfume compounding, Morel associates this elusive quality with the decyl-undecylenic group. He summarizes the characteristics of the esters of the decyl, undecyl and undecylenic series on the following table:

Ester	*Mol. Wt.*	*B.P.*	*S.G.*	*R.I.*	*Basic Odor*
Decyl formate	186	240	0.875	1.4270	Orange-honeysuckle
Methyl decylate	186	224	0.880	1.4230	Vinous honey
Decyl acetate	200	272	0.875	1.4300	Orange-rose
Ethyl decylate	200	245	0.865	1.4260	Oenanthic
Allyl decylate	212	230	0.890	——	Banana-pineapple
Decyl propionate	214	265	0.880	——	Musky aldehydic
Propyl decylate	214	270	0.870	——	Grape skin
Decyl butyrate	228	270	0.887	——	Ethereal apricot
Butyl decylate	228	270	0.870	——	Vinous apricot
Decyl valerianate	242	280	0.865	——	Ethereal apple
Amyl decylate	242	280	0.860	1.4330	Arrack-cognac
Undecyl formate	200	265	0.865	——	Fruity orris
Methyl undecylate	200	260	0.870	——	Wild honey
Undecyl acetate	214	268	0.870	——	Aldehydic rose
Ethyl undecylate	214	255	0.870	——	Oenanthic
Allyl undecylate	226	260	0.895	——	Banana-pineapple
Propyl undecylate	228	250	0.860	——	Oenanthic citrus
Butyl undecylate	242	260	0.885	——	Oenanthic butter
Amyl undecylate	256	270	0.873	——	Weak rose
Hexyl undecylate	270	285	0.880	——	Rooty-herbal
Heptyl undecylate	284	295	0.875	——	Rancid, rooty
Undecylenyl formate	198	265	0.860	——	Fermented honey
Methyl undecylenate	198	270	0.885	——	Vinous-irone
Undecylenyl acetate	212	272	0.880	1.4400	Honey-rose
Ethyl undecylenate	212	264	0.880	——	Oenanthic
Allyl undecylenate	224	230	0.935	——	Pineapple type
Iso-propyl undecylenate	226	260	0.865	——	Citrus-oenanthic
Butyl undecylenate	240	252	0.875	——	Butter-oenanthic
Amyl undecylenate	254	277	0.875	1.4415	Oenanthic apricot

B.P. = boiling point at °C. at normal pressure.
S.G. = specific gravity average at 15.5°/15.5°C.
R.I. = refractive index, constant for the NaD line at 20°C.

Industry's Books

Chemicals of Commerce, by Foster Dee Snell, Ph.D., Consulting Chemist and Chemical Engineer, and Cornelia T. Snell, Ph.D., Consulting Chemist, Second Ed., (1952) 587 pp., D. Van Nostrand & Co., New York, Cloth $6.50.

The revised second edition of this book is designed to give the salient facts about any chemical sold in commerce. Written as non-technically as possible for the use of manufacturers and others connected with the chemical industry, it presents for the chemist a source of otherwise unobtainable summarized information. The facts supplied here about proprietary products are exact and impartial and form a valuable supplement to the manufacturer's or producer's own description. From these facts the potential user can judge fairly what a product will do and why it will do it. Since the products are listed in group classes rather than as a strictly alphabetical dictionary the lack of a comprehensive alphabetical index must be considered a serious oversight.

Wood Chemistry, Second Ed., edited by Louis E. Wise, The Institute of Paper Chemistry, and Edwin C. Jahn, State University of New York College of Forestry and 21 contributors, Volume I, 688 pp., American Chemical Society Monograph #97, Book Division, Reinhold Publishing Corp., New York, Cloth $15.

Now completely up to date and expanded into two separate volumes, this new revision describes fully the basic chemistry underlying the important processes and products employing wood or wood cellulose. Many chapters are entirely new; others found in the older edition have been completely rewritten from a new and fresh approach. Special topics not normally included in such a treatise—the growth, anatomy and physical properties of wood, the phenolic and related extraneous constituents of heartwood and their relation to taxonomy, the chemistry of extractives, the biological decomposition of cellulose, and the chemical analysis of wood and its components—are all thoroughly covered. Volume I deals with the growth, anatomy and physical properties of wood, the components and chemistry of the cell wall, and the extraneous components of wood. In volume II, the surface properties of wood, its chemical utilization, biological decomposition and chemical analysis are discussed. Cross-references between volumes has been kept to a careful minimum.

Essentials of Dermatology, by Norman Tobias, M.D., Associate Clinical Professor of Dermatology, St. Louis University, Fourth Ed., (1952), 596 pp., Illus., J. B. Lippincott Co., Phila., $6.

This popular treatise on diseases of the skin, now in its 4th edition, was conceived with the idea of placing a handy volume at the disposal of general practitioners and medical students who often have neither time nor inclination to refer to the larger standard dermatologic reference books. Differential diagnosis is stressed and tabulated, diagnostic features are emphasized and therapy is up-to-date and complete. Practically every chapter in this 4th edition has been revised in the light of advances in therapy, pathology or etiologic studies. Nursing aspects are included. This concise and effective working manual for everyday use contains the latest treatments for all common dermatoses and lists many new prescriptions.

Pharmacology In Clinical Practice, by Harry Beckman, M.D., Director, Departments of Pharmacology, Marquette University Schools of Medicine and Dentistry, 839 pp., (1952), W. B. Saunders Co., Phila., $12.50.

This book presents the kind of pharmacology that is taught at Marquette. When the author came into Pharmacology after clinical training, more than a quarter century ago, he found its pedagogical methods very disturbing. They were based on the premise that to fill a student with scientific facts regarding a large number of drugs would equip him to use those drugs subsequently in the treatment of his patients. This is incorrect because it assumes that the physician or surgeon at the bedside or operating table, and the dentist at his chair, all reason forward from the drug to the patient. They do not. They reason back from the patient and his malady to the drug. The author of this work thinks in terms of specific diseases and the opportunities they present to the pharmacologist, in terms of symptoms and not of anatomical groupings of organs or chemical groupings of drugs. The material in this book is presented with that orientation. There are two sections in this book. Section I presents the pharmacologic aspects of all the major problems that arise in medicine and dentistry. Section II supplies a few chemical and physical facts about the drugs discussed in Section I and lists some representative commercially available preparations of each so that the student will know the forms in which it is available.

Spanish-English Chemical and Medical Dictionary, by Morris Goldberg, Late Chief Technical Translator Translation & Research Bureau, 609 pp., First Ed., 1952, McGraw-Hill Book Co., New York, Cloth $12.

Companion volume to the English-Spanish Chemical and Medical dictionary, like its predecessor, includes thousands of hitherto unrecorded Spanish terms, English equivalents, and brief definitions. The successful condensation of highly technical matter and the defining of its terminology for correct and ready interpretation will be useful not only to students but to laymen in commercial fields as well. An attempt has been made to standardize the Spanish spelling, accentuation, and choice of variants as far as possible. Both in English and in Spanish, usage based on the most accepted modern trend was in the majority of cases the deciding factor. In choosing the English equivalent, great care has been taken to select the closest to the Spanish, in some cases preference overruling alphabetical sequence. As many alternate spellings as possible were eliminated, retaining only the unavoidable and much-used variant. Important synonyms likewise have been included with cross-references to the terms selected for definition.

Detergents—What They Are and What They Do, by Donald Price, Ph.D., Technical Director Oakite Products, Inc., 159 pp., (1952) Chemical Publishing Co., New York, $4.00 cloth.

This book reveals the chemical nature of the various groups of surface-active agents and illuminates the mechanism of their action in removing water hardness and wetting hard-to-wet surfaces. It discusses the role of optical bleaches, builders and extenders. It throws light on the manufacturing processes and important applications of detergents. Chapters: 1. What Detergents Are. 2. How the Synthetic Detergents Were Developed. 3. What Detergents Do. 4. Household Detergents. 5. Industrial Detergents. 6. Testing and Choosing Detergents. 7. Where Do Detergents Go from Here?

Organic Syntheses, An Annual Publication of Satisfactory Methods for the Preparation of Organic Chemicals, Volume 32 (1952), 119 pp., John Wiley & Sons, Inc., New York, Cloth $3.50.

This work contains procedures for the preparation of compounds which are of general interest or which illustrate useful synthetic methods. It represents, as nearly as possible, optimum conditions for the preparations with full details for all steps in the procedure. The melting point of each solid product is given, and the boiling-point range and refractive index (at 25°) of each liquid product. The method of preparation or source of the reactants and the criteria for the purity of the products is stated.

Practical Dermatology, for Medical Students and General Practitioners, by George M. Lewis, M.D., F.A.C.P., Professor of Clinical Medicine (Dermatology), Cornell University Medical College, 328 pp., Illus., (1952) W. B. Saunders Co., Phila., Cloth, $7.50.

This book, designed as a text for medical students, a practical guide for general practitioners, and an aid in orientation for other specialists, was written to meet the often expressed desire of students to have a concise and well illustrated text which would still serve their needs after they enter practice. It seeks to describe, as succinctly as possible, the clinical features and the methods of management of the more common skin disorders. Emphasis throughout the text is centered on means to accurate diagnosis. The material presented in this book will be of assistance both to practicing physicians and to those about to embark in practice who are poorly equipped to handle dermatologic problems because of the inadequate time allowed for teaching of dermatology in some medical schools. This elementary treatise is presented as a lucid and usable guide in practical dermatology for the non-dermatologist. This book is very thoroughly illustrated.

Diseases of the Chest, by T. Royle Dawber, A.B., M.D., F.A.C.P., Senior Surgeon, U.S.P.H.S.; and Lloyd E. Hawes, A.B., M.D., D.A. B.R., Radiologist at Faulkner Hospital, Boston, 440 pp., (1952) Illus., The Williams & Wilkins Co., Baltimore, Cloth, $10.

In this work Drs. Dawber and Hawes have filled a need which has been increasingly apparent for some time: the general physician's need for a complete, authoritative, yet simple guide to diseases of the chest and the uses of the x-ray. T. Royle Dawber is an internist; Lloyd E. Hawes is a roentgenologist. They have long worked together as a team, combining their two special fields of interest in the management of all types of diseases. That same teamwork is responsible for their present practical approach to chest diseases. The two authors have carefully selected large, clear x-rays that show every sort of chest disease likely to turn up in general practice. They discuss each one fully in the text—almost invariably on the page facing the illustration. This convenient setup enables you to study any one disease with a minimum of page-turning. The text explains in clear and simple terms how to choose the best means of diagnosis for each type of chest disorder: when to listen to the chest, how often to x-ray, and how to choose the one best type of x-ray for each disease, as well as how to interpret the findings.

Formulary and Therapeutic Guide, 355 pp., (1951), Appleton-Century-Crofts, Inc., New York, $4.

The first formulary of The New York Hospital was published in 1918 under the title The Pharmacopoeia of the New York Hospital. In keeping with tradition, the 1951 edition of the Formulary of the New York Hospital has been prepared as an aid to all professional groups who may share in the responsibilities of bringing the best possible medical care and management to the patients of the center. This reference book is the basis of that which is generally known as the Formulary System; the latter becomes a functioning policy of the hospital by virtue of a committee appointed annually by the Medical Board. The Formulary Committee is fully representative of all clinical services, the Department of Pharmacology of Cornell Medical College, the Department of Pharmacy and the Hospital Administration. Its function is to deal with contemporary problems in therapeutics, selecting for routine use within the institution or for prescribing in its out-patient services, therapeutic agents which represent the best available for the prophylaxis or management of disease and the deletion from use of drugs which have been superseded or have become obsolete. Contents: Preface—Formulary (entries are listed alphabetically)—Equivalent Weights and Measures—Latin Expressions and Abbreviations—Therapeutic Index

Cornell Conferences On Therapy, Volume Five, Harry Gold, M.D., Managing Editor, 295 pp., (1952), The Macmillan Co., New York, Cloth $4.

Since the inauguration of the Cornell Conferences at the Cornell University Medical College—New York Hospital, in 1937, they have presented completely modern thought applicable to today's medical problems by exploring some aspects of special interest, by analyzing the evidence on controversial points of opinion and practice, and elaborating the physiologic, pharmacologic, and chemical basis of therapeutic measures for presentation on the level of the general practitioner. In order to reach an eager and widening audience, these Cornell Conferences are being made available in book form. Volume V now takes its place in this truly outstanding series. It represents a group of conferences selected for their quality and enduring value. It includes up-to-date material on the treatment of cough, the management of fever, general indication for vitamin therapy, treatment of obesity, low cholesterol diet in treatment of atherosclerosis, use of sedatives and narcotics, addiction as a complication of the therapeutic use of drugs, treatment of some chronic muscular diseases, relief of pain by ethyl chloride spray, use of curare and curarelike agents, problems in treatment of the atomic casualty, treatment of acute arterial occlusion, of carbon monoxide poisoning, of pneumonia, of bacterial meningitis.

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Abreast Of The Markets

Botanicals Show Considerable Activity in December; Alcohol Price Back to 55c; Several Chemicals Lower

Price declines far outweighed advances in the market during December, as indicated in the accompanying graphs, all of which show a descending grade with the exception of the medicinal chemicals. In this latter category the graph went up very slightly from 104.3 to 104.5.

The most startling feature of the markets last month was the sharp increase in business among the botanicals, in which there were a large number of price declines among the commodities, and a large number of inquiries reported by the dealers.

Botanical dealers are of the opinion that these price declines are only momentary and are very deceptive as far as the true nature of the market is concerned. They have been brought about as a result of the delay in replacement buying on the part of the consumers. However, the discrepancy appears, not in the further decline of the botanicals, but in the fact that sharp advances are almost certain to start developing in the immediate months to come.

The current low prices of the botanicals, such as the balsam products, papain and ergot, to mention a few, merely represent six-month-old contracts which are only now being filled at prices then being quoted. As soon as all of these older contracts have been filled, consumers will be faced with a new slate of prices, according to botanical spokesmen. They further state that most consumers are carrying a very low inventory at the present time and will of necessity have to make replacements during the early part of this year.

Alcohol Back to 55c

In early December a major alcohol producer put its synthetic alcohol price up to 55 cents a gallon, and a few weeks later most of the other producers followed suit. This brings the alcohol price up to the level which had prevailed until November 10, 1952.

Producers have estimated that there will be enough alcohol available during 1953 to meet the Country's requirements, although they state the Government will need 75 million gallons for its own use. This will amount to anywhere from a third to a fourth of the year's production.

Riboflavin Reduced

Riboflavin was reduced $25 a kilo in December and is now being quoted at $100 a kilo in quantities ranging from a half-kilo bottle to a 25-kilo drum.

Thiamine Hydrochloride Down

Thiamine hydrochloride prices declined last month to $135 per kilo for lots of 100 grams or over, and to 16½ cents per gram for quantities less than 100 grams.

Ascorbic Acid, Sodium Ascorbate Down

Ascorbic acid has been reduced by $3.50 per kilo and is now selling at $21 a kilo for a 50-kilo drum and $21.75 per kilo for a 5-kilo drum. Sodium ascorbate is being quoted at $21 a kilo for a 25-kilo drum and over, and $21.75 per kilo for a 5-kilo drum.

Carnauba Wax Limited

Demand for carnauba wax has begun to pick up a bit, according to sources in the trade, who indicate that they expect much more activity later this month than was taking place in December.

In December there was very little material on spot, resulting from the meagre imports arriving from Brazil.

Quicksilver More Costly

Mercury metal took a big price jump during the past month from $205 a flask to the current price (as of January 1) of $213 on the lower end of the range, and extending up to $220.

Tragacanth Gum Reduced

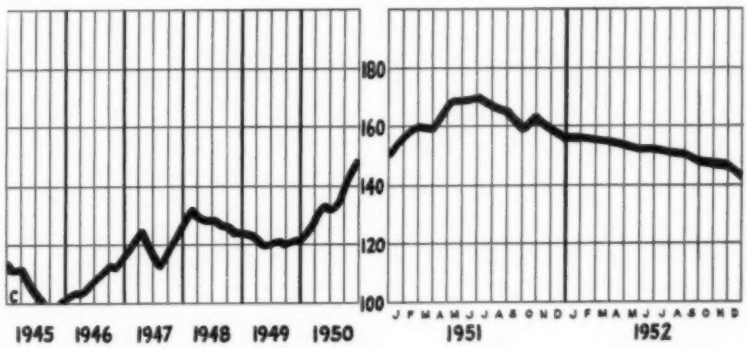
Tragacanth gum No. 1 and No. 2 in ribbon form were both reduced last month to $2.85 and $2.45 a pound, respectively. Reports indicate that business is expected to become brisker in this item as 1953 progresses. During the last few weeks in December business was largely restricted to small orders.

Agar Expected to Decline

While the current selling price of agar agar No. 1 is now in the range between $2.50 and $2.75, reliable sources state that material for the April or May shipment will drop to about $2.20 a pound. There has been a sudden flurry of inquiries and orders which strongly suggest that consumers have

(*Continued on page 112*)

25 Cosmetic Raw Materials—Unweighted Price Index. 1926 = 100.



The cosmetic raw materials index dropped from 147.2 to 142.1. Balsam copaiba, balsam tolu, menthol and tragacanth gum were down; quince seed and alcohol were up.

Prices quoted in this section were current on the first of this month.

GUMS
(CRUDE, POWDERED)

- GUM ARABIC
- GUM ARABIC BLEACHED
- GUM GHATTI
- GUM LOCUST (Carob Flour)
- GUM TRAGACANTH
- GUM EGYPTIAN (Talha)
- GUM KARAYA (Indian)

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Ergot Reduced by $1.50, According to Grade; Vanilla Bean Cycle On Way Up; Papain Lower in Some Quarters, Menthol Continues Down

Some quarters were quoting ergot as low as $2.75 last month, while others priced it at $3 a pound. One explanation is that the cheapest variety is of an extremely low grade which is of a very debatable quality and contains about 0.15 per cent total alkaloid. This particular grade of ergot is right on the borderline, for, in order to meet N.F. standards, the botanical must contain that much alkaloid at the very minimum.

The better grades of ergot which are selling for $3 and higher contain about 0.27 per cent alkaloid by assay. Dealers therefore caution prospective buyers to be careful in their ergot purchases and not to be fooled by extremely low-priced material.

Vanilla Beans Continue Upward

Even though there was very little activity in vanilla beans during the latter part of December and early January, the prices at the origin were continuing to inch up slowly, in the almost complete absence of buying pressure. This development strongly suggests that as 1953 progresses, and as consumers reenter the market for bean replacements, the advance will speed up.

The Bourbon vanilla beans were up 50 cents in December to the range between $4.50 and $4.75. The vanilla bean crop expected from Madagascar this month or in February will probably be smaller than normal; furthermore, the crop which is flowering this year and will yield beans in 1954 is also expected to be small and very deficient. This means that dealers will have to wait until the middle of 1954 before they will be able to get any kind of an idea on the probable size of the 1955 crop. The prices will therefore undoubtedly continue to climb in an upward cycle until the time when production has once again caught up with the demand.

In Madagascar, many of the vanilla growers have switched to the production of pepper, corn, and cloves. In Mexico they are switching to corn, beans, coffee, and even cattle.

Papain Reduced for Some Grades

Some papain is now being sold at $5.80, while other material of higher quality is being quoted at $6.25. In general, the cheaper material comes from Ceylon, it is about half strength, and it is extremely questionable material. The African papain, according to sources, is far superior and much more dependable.

One of the explanations behind this development is that the import price into the United States about 18 months ago was half of what it is today. Producers of the raw material made contracts with American importers at that time which they have only recently been able to fill. In the meantime, however, the production costs had climbed to much higher levels. When the papain producers began to fill the contracts a year or more later, they found they were losing money. The Ceylon producers, therefore, cut the strength of the papain and lowered the quality of their material to save money. The African sources maintained their high quality of material.

Menthol Still Lower

There was very little activity in menthol last month, as the period of sluggishness continued to hang on. Some dealers reported the Brazilian material at $5.25 and the Japanese item, at $6.85. This period of the year usually brings in a period of great activity for this commodity, but so far, none of these signs has developed. It is expected, however, that more interest will be shown in menthol later this month, or early February.

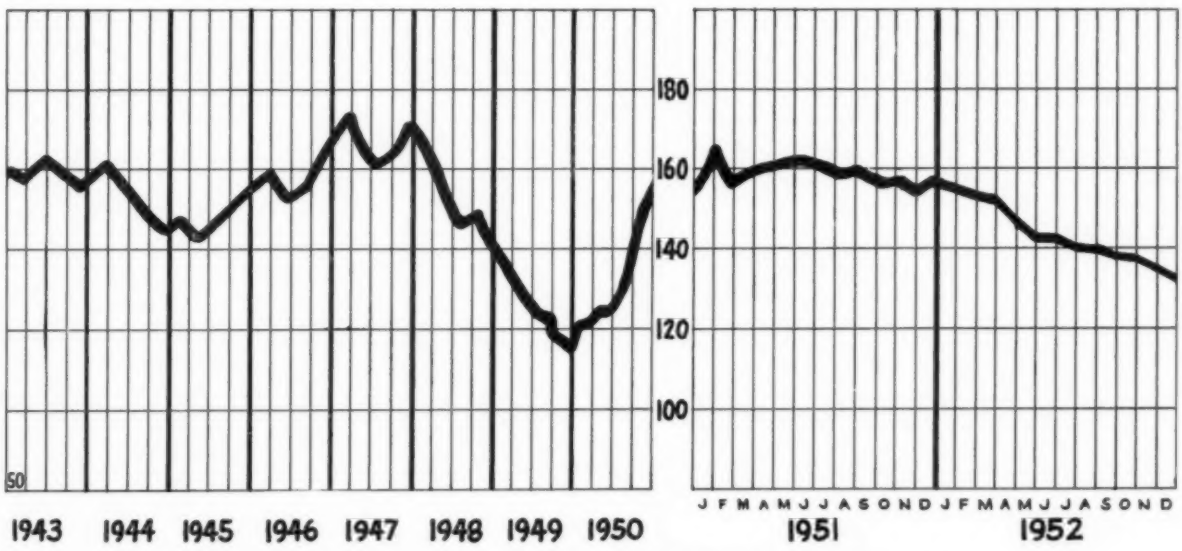
Bois de Rose Reduced

Bois de rose oil was reduced to $4 a pound by several essential-oil houses, while one was quoting it at $3.65. This latter figure was lower than the $4 floor price which has been established for quite some time in Brazil. There were not expected to be any important developments in this oil during the immediate future.

Balsam Copaiba, Tolu Lower

Both the balsam copaiba and balsam tolu decreased in price last month,

50 Raw Materials—Weighted Price Index. 1926 = 100.



The price index of fifty commodities for December dipped from 134.1 to 132.2.

December Price Changes

UP

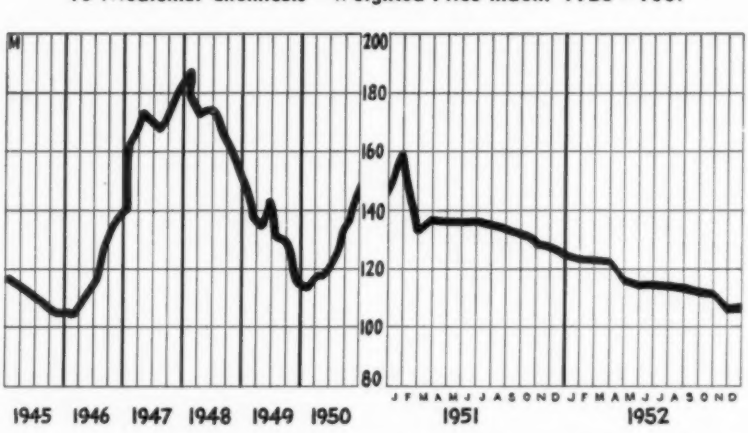
Denatured No. 1 Spec. Alcohol 12c
Cumin Oil $1.25
Dill Oil 65c
Jaborandi Leaves 2c
Kamala 17c
Lycopodium 10c
Mercury Metal 8c
Quince Seed 10c
Soap Bark, Cut 2c
Vanilla Beans, Bourbon 50c

DOWN

Balsam Copaiba Para 25c
Balsam Tolu 50c
Belladonna 7c
Benzoin Gum, Siam 75c
Bergamot Oil $2
Bois de rose, Brazilian 60c
Caraway Oil 25c
Cardamom Oil $2
Celery Oil $1.50
Citronella Oil, Ceylon 5c
Cumin Seed, Morocco 2½c
Ergot $1.50
Eucalyptus Oil 15c
Karaya Gum 10c
Lime Oil, Expressed 25c
Menthol, Natural 15c
Orange Oil, West Indian 75c
Papain, Pure, Powdered 45c
Peppermint Oil, Natural 75c
Peppermint Oil, Natural 75c Redistilled 50c
Petitgrain Oil, S. A. 5c
Saffron, Amer. 35c
Sage Oil, Dalmatian 75c
Sarsaparilla Root, Mexican 2c
Sassafras Oil, Artificial 5c
Soap Bark, whole 3c
Spearmint Oil 25c
Stramonium Leaves 3c
Tragacanth Gum No. 1 15c No. 2 15c
Vetivert oil, Reunion $2

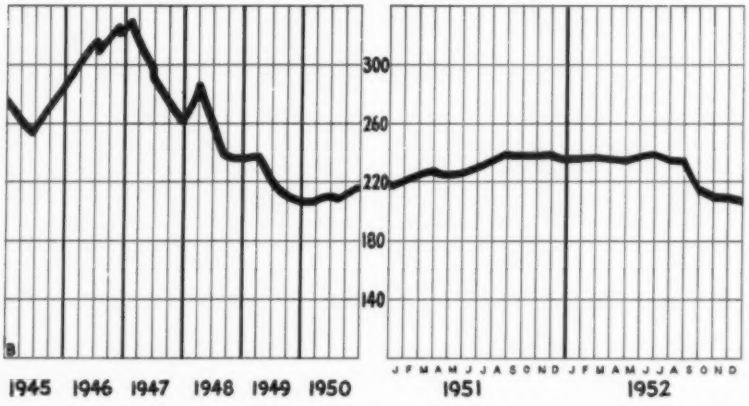
representing the absence of buying which has been occurring in all botanicals for quite a long time. These items are expected to stage a reversal in the near future, however, for reports indicate there is not too much material available from the origin at currently low prices. The respective prices of 95 cents and $3.50 of the copaiba and tolu reflect the quotations of many months ago, and are probably imports contracted for earlier this year.

15 Medicinal Chemicals—Weighted Price Index. 1926 = 100.



The medicinal chemicals index went up slightly from 104.3 to 104.5. Menthol was lower; mercury was higher.

15 Botanicals—Weighted Price Index. 1926 = 100.



The botanicals index went down from 208.1 to 206.2. Balsam tolu, belladonna and ergot were lower.

Agar Expected to Decline

(Continued from page 109)

depleted their enormous stocks which they have been holding since the outbreak of the Korean war in 1950. These consumers have been postponing any replacement purchasing as long as possible, probably in an effort to keep their inventories low until the turn of the year. Now that January is here, spokesmen in the industry expect an increase in business not only in this product, but in many of the other botanicals as well.

After the buying splurge a year and two years ago, Japanese agar producers pushed the price of the raw material higher and higher, with the result that consumers in the United States stepped out of the market entirely. The Japanese, it seems, now find they have an excess of agar on hand and will be forced to decrease the price in order to sell it. Whether the price will continue to fall after the market becomes active again remains to be seen.

Jaborandi Leaves Up 2 Cents

The principal reason for the increased price of this item has been that one of the principal users has stopped buying the material. The abrupt result has been that jaborandi is no longer the volume item that it had been. Today, therefore, it costs more proportionately to collect and prepare the jaborandi leaves for sale in small quantities, than it did formerly, when large amounts were sold at one time.

Essential Oils in Egypt

Egypt has been enlarging its essential-oil operations in recent years according to a recent report, and there are several firms which specialize in the cultivation and distillation of essential-oil plants—in addition to a few large landowners who devote part of their land to the cultivation of these plants.

The Horticultural Section of the Egyptian Ministry of Agriculture operates an experimental station for the growing of various plants. It also operates an essential-oil extraction plant which is used for laboratory purposes and as a means of studying the possibilities of oil production on a commercial basis.

Among the plants grown in this country are the geranium, cultivated on 250 acres, which rates as the most important one. Jasmin, occupying 80 acres, is declining in importance because of Italian competition. Others include peppermint, on 55 acres; anise, on 180 acres; and tuberose on 5 acres; spear-

mint, cumin, eucalyptus, citriodora, bitter fennel, attar of roses, cassie farnesiana, bergamot, camphor, caraway, lemon, lime, rosemary and cajeput, among others.

The production of most of these oils could be rapidly expanded, according to this source, if the demand were great enough to need a permanent industry.

Exports in 1949 amounted to 1,466 kilograms; in 1950, 1,830 kilograms; and in 1951, 3,048 kilograms, with the majority of the exports going to the United States, France and England.

Lemon Oil Remains Firm

California lemon oil remained between $5.75 and $6, with the demand continuing at a high level. The Italian oil was slightly cheaper at $5.65, although spokesmen indicated that some of it was of questionable quality. In each case there was ample oil available to take care of all needs for the time being.

Orange Oil in Abundant Supply

The orange oil market is still displaying a very soft tone, with the supply far exceeding the demand. The American distilled oil ranged last month from 80 cents to $1.25, while the cold pressed oil extended from $1.20 to $1.75 a pound. There has been no indication up to the present time as to whether the Florida oil will continue to be produced as copiously as in the past or whether the demand will eventually catch up with the supply.

The West Indian oil went down to $2.75 in December, while the range of the Italian oil extended between $3.25 to $6.50, depending on the quality of the oil.

Studying Clove Tree Disease

More than 5,500 experiments using every known method of mechanical inoculation and grafting, to find the cause of the principal disease affecting clove trees have been performed in Zanzibar and Pemba, according to Foreign Commerce Weekly. These tests have yielded no positive evidence that the plague, which results in the sudden death of the trees, is a virus. There are indications that a fungus may be responsible for the death of the young trees. These investigations are being continued without letup.

Clove Bud Oil Scarcer

There has been no relief in the clove-bud oil situation. In most quarters the price of the oil begins at $10 and goes up from there, and in most of these cases, the oil is even then virtually unobtainable since the quotations are largely nominal. Some essential-oil houses have no oil stocks on hand and have stopped quoting the oil altogether.

Eucalyptus Oil Down 15c

The price of eucalyptus oil was reduced 15 cents in December to $1 a pound as a result of increased competition on the spot level.

Bergamot Oil Lower

The Consortium last month depressed the lower price limit of bergamot oil by $3 and the spot prices of the oil immediately went down from $15 to $13 a pound. Dealers expect the spot price to go even lower in the months ahead, as the new-crop material appears on the market. It will take some time for the old-crop oil to be sold and be entirely replaced by new and lower-priced supplies.

Last year's crop of bergamot oil was below average, a factor which helped boost the price of the commodity during 1952. The new crop, expected this month, is believed to be of average size.

Lemongrass Oil Situation

The 1952 production figures of lemongrass oil are expected to reach about 350,000 pounds, according to one source, which is close to that of last year. However, because of Guatemala's difficulty in meeting the competition offered by India and Formosa, a sharp drop is expected in the next producing season.

Citronella Oil More Stable

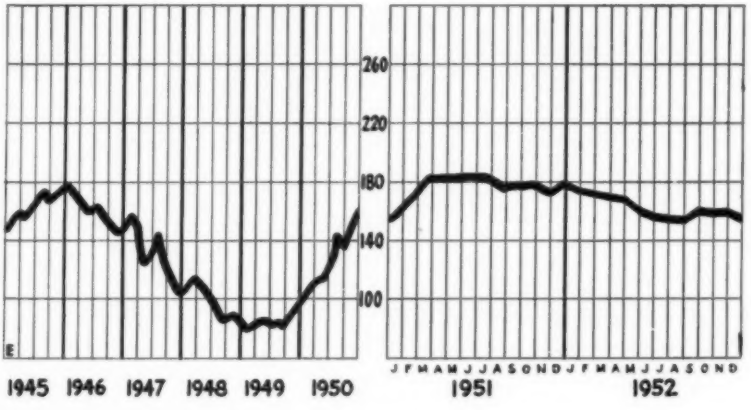
While the price of Ceylon citronella oil continued to decline last month, this drop, amounting to 5 cents, indicated that the oil was beginning to become a little firmer. The recent large shipments of oil to the United States from Ceylon have depleted the supply of that island, say the dealers, and the price of citronella oil in some cases has been inching upward. The ceylon oil last month was being quoted in the range between 65 cents and 90 cents, with the Java oil still extending from 65 cents to Java oil still extending from 65 cents to $1.

Guatemalan Oils Affected

As a result of the enormous stocks of citronella oil emanating from Ceylon, the production of citronella oil in Guatemala has been greatly curtailed, according to a report given by F. J. Ippisch, general manager of the Essential Oil Producer's Association of Guatemala. Owing to higher production and labor costs, this Central American country has been unable to compete with the much cheaper Ceylon product. While some authorities state that Guatemala will eventually be forced to shut down most of its essential-oil operations, others say this is definitely not so. Those of the latter opinion believe the entire problem will solve itself in due time.

Since there are several manufacturers of synthetic vitamin A in the United States who have established standing orders of lemongrass oil with the Guatemalan growers, and since these manufacturers buy fairly constant supplies of the oil each year regardless of the spot price, there is little likelihood at the present time that anything drastic will occur in this Central American essential-oil industry.

15 Essential Oils—Weighted Price Index. 1926 = 100.



The essential oils index dropped from 161.6 to 156.9. Bergamot, bois de rose, citronella, eucalyptus, lime and peppermint oils were all lower.

The Substitution Problem

(*Continued from page 35*)

ceutical manufacturer brings out an original product, immediately five, six, or more other pharmaceutical manufacturers bring out the same product at the same price. This is competition. But when another manufacturer brings out the same product at a sharply lower price, that is imitation. To me, the matter of price determines whether or not a product is an imitation."

A.P.M.A. Meeting

(*Continued from page 37*)

from man. As a rule, drugs are inactivated by chemical transformation much more rapidly in animals than in man so that results from animal studies are often difficult to carry over to man.

The approach followed in the laboratories of the National Heart Institute are based on the simple premise that the pharmacological effect of a drug is related to the concentration at its site of action, which, in turn is related to its concentration in the blood. A desirable dosage regime is one that will rapidly elevate the blood concentration to the required level and maintain it there long enough to achieve a desired therapeutic effect.

In order to study the therapeutic effect, all factors controlling the blood level must be measured. These factors are: rate and degree of absorption from the gastro-intestinal tract; rate at which the drug is eliminated in the urine; rate at which the drug is destroyed by chemical change; and the degree to which the drug is localized in the tissues. It is only by studying the interplay of all of these forces on the blood level that a drug can be properly understood and administered.

Urinary Stones

(*Continued from page 43*)

reaction of the urine may provide some information concerning the nature of the calculus.

According to Schlinger,[12] calcium oxalate is the most common constituent of urinary calculi; being the predominant compound in about one-third of all stones. Next in frequency are phosphates in combination with calcium, magnesium and ammonium. Uric acid, which frequently forms the nucleus of a calculus, is the predominant constituent in a small per cent of the cases. Carbonate, cystine, xanthine, and urate stones are comparatively rare.

The symptoms of urinary calculi may vary widely; ranging from none at all (the so-called "quiet" stone) to all of the general symptoms of a kidney infection associated with the stone.[4] As noted by Hayman,[8] stones may continue to be formed and passed for years without serious kidney damage and with no more inconvenience than attacks of renal colic. Much more commonly, however, movements of the stone lead to trauma to the pelvis or ureter with severe colic, hemor-

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rhage and secondary infection. Persistent obstruction of the ureter may lead eventually to destruction of the kidney. Hayman also points out that a stone rarely persists in a normal bladder. However, an obstruction may cause retention and growth in the bladder; this being followed by trauma, inflammation and infection.

Pain is the most constant symptom of a stone in the kidney or ureter and the pain is usually proportional to the degree of obstruction produced by the calculus.[12] According to Kretschmer,[29] sudden pain in the kidney area is presumptive evidence of renal calculus, especially if the pain radiates down and forward along the ureter to the bladder and genitalia. Corroborative evidence is provided by nausea and vomiting, fresh red blood in the urine, and knowledge that a stone has formerly been passed.

In making a diagnosis of urolithiasis, it is necessary to differentiate between the symptoms produced by the stone and similar symptoms associated with gall-stones and various gastrointestinal conditions. Sometimes both the gastrointestinal tract and the kidneys are involved. Fortunately, renal and ureteral calculi can be demonstrated by ordinary roentgenograms in about 95 per cent of the cases. In the remainder, the intravenous urogram may be useful.[29] Despite the ready availability of x-ray information, Schlinger[12] finds that the diagnosis of urinary stone is missed in 30 to 35 per cent of the cases because the so-called classical symptoms are lacking.

Treatment of urinary stones may be symptomatic, "expectant," mechanical (cystoscopic), or surgical. Often the first step in treatment is the alleviation of the pain of renal colic. In some cases, a hot tub bath or hot moist applications over the kidney may help to relieve the acute renal colic. Frequently, however, the injection of morphine or a similar drug is required. Antispasmodic drugs are also useful adjuncts.[30] After the acute colic is relieved, the lower degree of pain may be controlled by codeine or a similar orally-administered drug.[31]

Following this initial step, it is necessary to correct any urinary stasis that may be present and take measures to prevent or control infection. This last requires an examination of the urine to determine the responsible organism and to institute therapy with the most appropriate antibacterial drug. Fortunately, as shown in a recent discussion[32] on urinary antiseptics, there are a number of effective agents for this purpose.

Sooner or later, depending upon conditions, it will be necessary for the doctor to decide whether to employ active measures for elimination of the stone or to treat the patient expectantly under careful observation.[31] Expectant treatment, which aims at permitting spontaneous passage of stones, is said[12] to be justified in cases in which the calculus is small, in which the symptoms have been of short duration, in which there is no great deformity of the pyelogram, and in which no serious infection exists. Such treatment consists of forcing fluids, controlling pain, preventing infection, and following progress of the calculus by x-ray.

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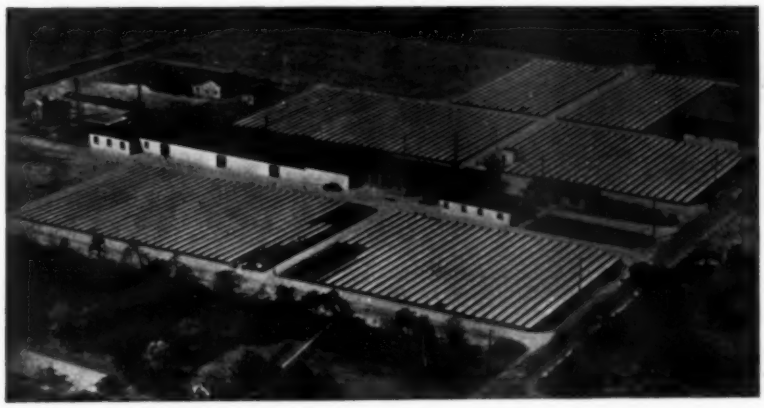

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Unfortunately only a comparatively small proportion of cases meet the requisites for expectant treatment and urologic or surgical procedures must be employed. Sometimes a stone can be removed by dilatation of the ureter or other manipulation with the ureteral catheter.[9] As pointed out by Hanley,[11] the passage of a ureteral catheter up to and, if possible, beyond the stone frequently results in its expulsion shortly afterwards. In a report of his experiences with 1,550 cases, Dourmashkin[33] stressed the value of simple ureteral dilatation below the stone in instances in which expulsion did not occur spontaneously.

In some cases, calculi respond to lavage or irrigation by stone-dissolving solutions administered via catheters Special care and rather elaborate equipment is required, since a tube must be maintained in the kidney for periods up to three weeks so that the stones can be washed continually with the solution. If, says Lattimer,[6] the stones do not loosen or crumble within three weeks, the interior of the kidney may become irritated by the fluids.

Speaking of the buffered citric acid solutions, he states that they can be used on the occasional large, soft, calcium phosphate stone. The solutions may also be useful against alkaline-encrusted cystitis lesion in the bladder. However, they are of no value against the more common hard stones, such as the calcium oxalate kidney calculi or the usual hard bladder stones.

The search for some method of dissolving urinary calculi has gone on for many years.[11,34] Various solutions, most of them depending on the stone-dissolving properties of citric acid, have been tried from time to time.[35,36] The best known and most widely used of these solutions was developed by Suby, Suby and Albright.[37] Following extensive investigation, they found that the irritating properties of the formerly-used citric acid sodium citrate solution could be practically eliminated by adding magnesium oxide, without impairing its stone-dissolving efficacy. This preparation, which they called Solution G, consists of:

Citric acid	**32.2 Gm.**
Magnesium oxide, anhydrous	**3.8 Gm.**
Sodium carbonate, anhydrous	**4.4 Gm.**
Water, distilled, to make	**1,000.0 cc.**

This solution, which is also referred to as Albright's solution or Suby's solution, has a pH of 4 when properly prepared.[38] As remarked by Wozencroft,[34] Solution G is applicable only to "phosphatic stone," namely, stone composed of calcium phosphate with or without calcium carbonate or magnesium-ammonium phosphate or both.

In clinical investigations, Herger, Sauer and Neter[39] used Solution G in the treatment of 21 patients who had persistently alkaline urine with a tendency to the formation of stones and incrustations. The most favorable results were obtained in 13 patients with incrusted bladder ulcerations. In two patients with urinary calculi, treatment resulted in dissolution of one of two stones in the kidney pelvis in one case and regression in size of the calculus in the other.

More recently, Keyser and his colleagues[40] found that, by adding the enzyme, urease, to Solution G, they could obtain an improved action on the stones. This was attributed to the effect of the enzyme, which attacks the organic "cement" that holds the crystals together. Thus, the organic framework of the stone as well as the crystalline component were subjected to disintegrating action. Antibiotics were also administered during irrigation with the Solution G—urease combination to prevent the possibility of infection from the indwelling catheters.

Newer work[41,42,43] points to the possibility that sequestering or chelating agents such as ethylenediamine tetra-acetic acid may be useful in preparing stone-dissolving solutions. In the studies made by Kissin and Natelson[44], a comparison was made between the solvent action of a 3 per cent solution of ethylene diamine tetra-acetic acid at a pH of 7.0 and that of Solution G. It was found that the solution of the sequestering agent is consistently more effective with all types of stones, including calcium oxalate, calcium phosphate, and calcium carbonate. This preparation has the additional advantage of a maximum efficiency at a neutral pH as compared with the acid of pH of Solution G. However, when used to irrigate the bladder, the sequestrant solution was found to be fairly irritating. Work is now going forward to overcome this disadvantage.

When expectant treatments and mechanical measures fail or are not indicated because of the nature of the stone or the condition of the patient, surgery is usually required. Fortunately, modern urinary antiseptics often give the surgeon an opportunity to get the patient in much better condition for operation. The administration of fluids, antibiotics and the free use of blood also helps to improve surgical results.[4]

Newer, special technics also help to facilitate the surgical procedures. Among these developments is the fibrinogen coagulum for injection into the exposed renal pelvis during operation to remove small kidney stones and tiny fragments that might become nucleic for new stones.[6,45] For example, the coagulants used by Harrison and Trichel[46] consist of fibrinogen and thrombin or clotting globulin. About five minutes after the materials are injected into the renal pelvis, a solid clotted mass is withdrawn, carrying the calculi with it.

Despite the efficacy of the various procedures, stones will recur in a fairly high proportion of cases. Back in 1915, urologists[47] reported a recurrence rate as high as 56 per cent. In 1947, Hayman[8] noted that, in spite of the best surgical technic and careful after-treatment, recurrence occurred in about 16 per cent of aseptic and 30 per cent of infected cases. In 1952, however, Higgins[16] reported that the incidence of new stone formation had fallen from 16.9 per cent to 2.4 per cent in his series of cases, thereby indicating the efficacy of his preventive procedures.

It is obvious, therefore, that the prevention of stones formation is an important part of the management of urolithiasis. Urologists have found that it is possible to minimize the incidence of recurrent stone formation

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by proper dietary and medical measures. Indicative and apparently quite successful is the regimen employed by Higgins.[16] As summarized by this authority, it consists of: (a) Abundant fluid intake; (b) elimination of stasis; (c) eradication of local and focal infection; (d) correction of metabolic errors; (e) removal of an adenoma of the parathyroid gland, if one is present; (f) administration of large doses of vitamin A for a specific effect on epithelial structures or for correction of vitamin A deficiency; (g) correction of vitamin B deficiency for its effect on oxaluria; and (h) dietary adjustment.

There is quite general agreement that dilution of the urine by high fluid intake is a primary preventive measure. "Dilution of the urine," say Prentiss and his associates,[31] "will prevent more stones than all other measures combined." Lattimer[6] advises that stasis can be prevented in patients who are immobilized in bed or in casts for long periods of time by changing their position frequently, forcing fluids and by keeping their urine clear and acid.

The administration of acidifying chemicals, such as ammonium chloride, has been suggested[48] as a means of modifying the pH of the urine to a point unfavorable to stone formation. In the experiments conducted by Vermeulen and his colleagues the addition of ammonium chloride to the diet prevented the formation of calculi in the bladders of the test animals. The acidifying agent also caused dissolution of experimentally induced stones composed largely of magnesium ammonium phosphate. Conversely, certain types of calculi, such as cystine stones, may be dissolved by making the urine alkaline.[6] Hayman[8] suggests that sodium or potassium citrate be prescribed for this purpose. Information[50] from Europe indicates that sodium benzoate plus choline may also be useful to combat cystine stones.

It is therefore obvious that information concerning the chemical composition of the stones is an important consideration, not only from the standpoint of appropriate medication, but also with respect to the proper preventive diet. With such information at hand, a diet can be prescribed which is low in the elements from which the stone was formed. Thus, if the stone shows the presence of calcium oxalate, the ingestion of foods rich in oxalates should be avoided; notably spinach, asparagus, tomatoes, rhubarb, strawberries; chocolate and cocoa. In the case of pure uric acid stones, the individual might avoid the excessive use of protein—rich foods.[51]

There is frequent emphasis on the importance of including adequate quantities of vitamin A in regimes for preventing stone formation. Although its role is not completely understood, it is now believed that vitamin A deficiency is a vital factor in stone production.[11] In experimental studies, renal and vesical calculi have been produced in animals on diets deficient in this nutrient.[5] Moreover, as mentioned,[16] biophotometric tests indicate that a high proportion of patients with urolithiasis suffer from vitamin A deficiency.

As noted by Prentiss and his associates,[31] vitamin A in oral doses of 25,000 units daily is believed by some observers to maintain the renal epithelium in a normal condition. Lattimer[6] feels that it is probably advisable to give vitamin A to all stone-forming patients. He states that 100,000 units of the vitamin are usually prescribed in such cases.

Various other preventive measures have been investigated during the last few years. For example, a number of urologists[17,31,52,53] have reported favorably on the administration of alumina gels to control phosphatic calculi. Through their phosphorus-binding properties, these alumina gels divert phosphate excretion from the urinary to the intestinal tract and thereby reduce the number of phosphate ions available for combination with calcium, magnesium or ammonium ions.

In their report on the use of these agents Marshall and Green[54] state that the administration of alumina gels together with a controlled, constant dietary intake of phosphorus may avert the formation of phosphatic stones in the urinary tract and help to prevent an increase in size in stones already present. This is borne out in their observation that no new stones developed in any of 37 patients treated prophylactically with such a regimen for 14 months or longer. All had previous bad naturally formed phosphatic calculi and most of the treated patients had had more than one calculus.

Aluminum hydroxide gel, sometimes combined with magnesium trisilicate to combat constipating tendencies, has been used in some cases. However, better results have been obtained with a basic aluminum carbonate gel.[52,53] Indicated specifically for use as a urinary calculus inhibitor, and showing a high phosphorus-binding capacity, this product is available under the name of Basaljel (Wyeth).

During the last year, Butt and his associates[55-59] have published several reports on the role of hyaluronidase in the prevention of renal lithiasis. In a recent publication[60] which summarizes much of the work with the enzyme, it is noted that this application came from the observation that subcutaneous injections of hyaluronidase, mixed with isotonic sodium chloride solution, resulted in clearing of urine in patients who previously had turbid urine with much sedimentation. The effect of hyaluronidase was manifest within 30 minutes after injection and persisted for 24 to 72 hours. Subsequently it was shown that the injection of hyaluronidase results in the release of a protective colloid into the urine, which not only disperses crystalline matter already present but also inhibits the formation and growth of new crystalline matter.

These findings led to the development of a regimen of hyaluronidase therapy for patients subject to lithiasis. It is stressed that an adequate dosage of the enzyme is necessary for successful therapy, because an inadequate dosage might result in the exact reverse of the intended purpose, due to the phenomenon of sensitization. Fortunately, an overdose of hyaluronidase does not produce adverse effects.

Clinically, hyaluronidase therapy has been effective

KOMMON/ SCENTS!

The Republicans have hardly finished counting their victories before they must start counting their supporters. The Democrats have borrowed the chant: "Time for a Change". (This line isn't original, but it's offered with a new kind of hostility.)

●

First attempt to torpedo Eisenhower was launched when Senator Taft criticized Ike's choice of a Labor Secretary. People who denied "Ike surrendered to Taft during the campaign" are now denying that he surrendered to the Democrats. (There hasn't been so much military talk for unrelated matters since Father became a scoutmaster!)

●

Happiest man on the national scene is (or should be) Governor Adlai Stevenson. In his post-election speech, Stevenson said he was "too big too cry|. . . and it hurts too much to laugh." But the man who won the election has a bigger problem. Translated from the military: He doesn't know whether or not to cut bait.

●

Appointment of Oveta Culp Hobby to a top position has been loudly applauded as recognition of the fitness of women for government. Naturally, there are those cynics who think the former WAC officer was appointed mainly because Ike wanted a Colonel on his team, even if she looked like a lady.

●

Job of top UN Delegate for Lodge of Massachusetts was applauded by both Republicans and Democrats. The former insist he's good man for the job. The latter contend its sufficient revenge for the time Lodge's daddy made the UN necessary by keeping us out of the League of Nations.

●

The "rugged individualism" of the GOP got a new airing in the Legislature. Speaker of the House Joe Martin said Taxes could be cut now but Senator Stiles Bridges said they couldn't until the budget was balanced. Unfortunately, both proved their points to an already bewildered citizenry.

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in preventing calculous formation or reformation during a period of 11 to 21 months in 19 of 24 patients, in whom kidney stones previously formed at a rapid rate. However, as noted in a commentary[61] on this new procedure, although hyaluronidase promises to be a valuable therapeutic agent in preventing formation of recurring stones, this use of the drug is still in an experimental stage.

Mention should also be made of the possible use of estrogens in the prevention of urinary stones. Pointing out that it is still in the experimental stage, Higgins[16, 17] explains that the treatment is based on the concept that the citric acid excreted in the urine is not a waste product but rather a valuable constituent of the urine by virtue of its ability to enhance the solubility of calcium. The use of estrogenic hormones increase the excretion of citric acid and decreases the excretion of calcium. At present, this type of therapy has been used only on patients who have had hysterectomies or in women beyond the age of the menopause.

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Cosmetic Chemists Meeting

(Continued from page 41)

as local deodorants: elimination of odors of putrefaction in wounds, and local infections: mouth, nose, throat, vagina; elimination of mouth odor due to debris or other local causes, by means of tooth pastes, mouth washes, chewing gum or candies.

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Warren B. Blumenthal, chief, Chemical Division, Titanium Alloys Manufacturing Division, National Lead Company, reported on Properties of Zirconium Compounds Significant to the Cosmetic Technologist.

The extraordinary complexity of zirconium chemistry gives rise to a great diversity of types of chemical compounds containing this element. Some of these compounds have shown value in pharmaceutical and cosmetic preparations, in which they appear to function as anti-puritics and body deodorants. Other uses are anticipated, such as the use of zirconium lakes and toners in coloring cosmetics. Pertinent aspects of zirconium chemistry are described and new data on the toxicity of a zirconium lotion are presented. The conclusion is drawn that zirconium compounds are safe and promising components for certain types of cosmetics.

Patent Thoughts and Trends

(Continued from page 101)

example there can be substituted, with substantially the same results, 60 parts of a 30% solution of the hydrobromide of amino ethyl thiosulfate ($\backsim$0.69 mole). Such a solution can be prepared by reacting bromoethylamine hydrobromide with sodium thiosulfate.

EXAMPLE 6

Seven parts or 0.076 mole of thioglycolic acid were diluted with 50 parts of water and 5 parts of ammonia water (28 per cent NH_3). To the solution was added a 10 per cent solution of hydrogen peroxide until the combination of one drop of the mixture on a spot plate with one drop of sodium nitroprusside just failed to produce the typical red mercaptan reaction. The mercaptan, ammonium thioglycolate, had then been oxidized to the disulfide, dithiodiglycolate. Heat liberated during this reaction was removed by cooling the reaction vessel with water.

To the resulting solution were added 4 parts or 0.038 mol sodium bisulfite and sufficient water and ammonia water (28 per cent NH_3) to bring the alkalinity to a pH of 9.3 and the total weight of the mixture to 100 parts. The bisulfite reacted with the disulfide (dithiodiglycolate) to form an equimolar mixture of mercaptan (thioglycolate) and organic thiosulfate (carboxy methyl thiosulfate). Potentially this solution was about 0.44 molal in both mercaptan and thiosulfate.

The above composition was used as in previous examples to saturate two strands of 12 human hairs each wound as in previous examples. One strand was exposed to the solution for 10 minutes at the standard temperature of 100° F. and the resulting curl was 12 mm. in diameter. The second curl was 9½ mm. in diameter and 35 mm. in coil length after exposure for 60 minutes at 100° F. There was no visible damage to the hair in either case.

For comparative purposes, two comparable strands of hair were wound and treated under the same conditions with a commercial hair waving lotion containing about six per cent thioglycolic acid as the active ingredient. After rinsing and fixing, the curl formed by 10 minutes' exposure to this solution had a diameter of 7.2 mm. and a coil length of 48 mm. The 60 minute exposure in this case produced a curl of 8.5 mm. diameter and a coil length of 86 mm. Severe damage to the hair was observed in the hair treated by 60 minutes' exposure as indicated by its shriveled appearance, its low strength, and its high tendency to elongate on exposure to humid air.

EXAMPLE 16

5.1 parts or 0.055 mole of thioglycolic acid were dissolved in 70.0 parts water and the solution was made alkaline by the addition of 12 parts of ammonium hydroxide containing 28 per cent NH_3. To this solution was added 0.8 part of a 30 per cent solution of hydrogen peroxide, 1.3 parts of thioglycolic acid ($\supset$0.014 mole) being oxidized thereby to about 1.3 parts of dithiodiglycolic acid (as the ammonium salt) ($\supset$0.007 mole). Caution was taken to keep the solution cool during oxidation. To the resulting solution were added 5.2 parts of an ammonium bisulfite solution prepared by dissolving 74 parts of SO_2 in 100 parts of concentrated ammonia water containing 28 per cent NH_3 ($\supset$0.035 mole ammonium bisulfite). The mixture was then adjusted to a total weight of 100 parts and to a pH of 9.3 by the addition of water and ammonium hydroxide.

The potential mercaptan concentration of the above solution is about 0.55 molal while the potential organic thiosulfate concentration is about 0.08 molal or about 15 molar per cent of the potential mercaptan concentration.

Test curls of human hair prepared with this solution using a 6.5 mm. curler substantialiy in accordance with the procedures already described had the following characteristics.

Diameter of curl in mm. after exposure—		Coil length of curl in mm. after exposure—	
10 min. at 100° F.	16 hrs. at 100° F.	10 min. at 100° F.	16 hrs. at 100° F.
7.1	6.8	34	57

As a basis of comparison, similar test curls were made with commercial waving lotion containing ammonium thioglycolate equivalent to about 5 per cent thioglycolic acid and no organic thiosulfate. A curl of human hair produced by 30 minutes contact at 100° F. with this commercial lotion resulted in a coil length of 57 mm.

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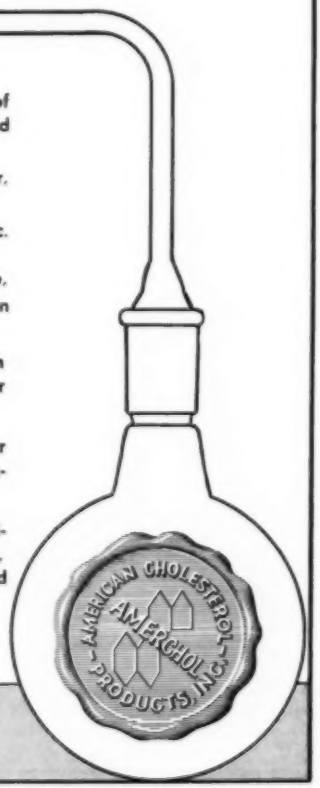

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and a strand of hair treated for 16 hours at 100° F. was almost completely destroyed as the damage was so great that the treated hair did not fall into curls for diameter measurement in the usual manner, but gave a coil length of 92 mm. Thus it is seen that the presence of only 15 molar per cent of potential organic thiosulfate based on the potential mercaptan concentration in the above experimental solution greatly reduced hair damage, since such a solution produced a coil length of only 57 mm. instead of 92 mm., after 16 hours exposure at 100° F. Of course, even greater protection against hair damage at 100° F. will result with solutions such as the above if proportions are adjusted to give more potential thiosulfate-forming capacity in the mixture. The monoethanol amide of thioglycolic acid can be used to replace a part of the 0.055 mole of thioglycolic acid in the test solution of this example with substantially the same result.

An idea of the patent protection obtained can be ascertained from claim 1 which follows:

A new composition comprising an aqueous solution at pH 7 to 10.5 of the equilibrium reaction mixture of (*a*) water-soluble mercaptan of the general formula RSH and (*b*) water-soluble salt of thiosulfuric acid of the general formula $R'SSO_3H$ wherein each of the symbols, R and R', represents a monovalent organic radical which is free of the concomitant presence of a carboxyl group and an amino group, and in which the free valence is on an aliphatic carbon atom, the total potential concentration of mercaptan in said solution being between 0.05 and 2.0 molal.

RECENT PATENTS

2,602,793—**J. W. Cusic—8-haloxanthine salts of N-dialkyl-aminoalkyl-N arylmethyl-alph-amino-pyridines, filed July 8, 1952, District Court, N. J., Brayton Pharmaceutical Co. C. D. Searle & Co.**

2,617,824—**Abbott Labs.—Sulfates of Aminobenzoic Diethylaminoethyl-Amide.**

2,617,828—**Merck & Co.—7-Keto-4b-Methyl-1,2,3, 4,4a,4b - 5,6,7,9,10,10a, - Dodeca - hydrophenanthrene-1, 4-Diol.**

2,618,584—**Ralph L. Evans Associates—Esters of Hydroxy-Polycarboxy Acids as Solvents for Active Chlorine-Containing Compounds.**

2,619,489—**Schenley Industries — Antihistamines Amino-thiodiazoles such as 2-isopropyl-5-N-(Bet-adimethylaminoethyl) benzylamino-thiodiazole.**

2,618,636—**Gen. Aniline & Film Corp.—Bis(2-Morpho - lino - 4 - Amino - 1,3,5 - Triazyl - (6) -) - 4,4' Diaminostilbene Sulfonic and Carboxylic Acids.**

2,618,637—**Sterling Drug — Tertiary-Aminoalkyl Diarylmethyl Sulfones.**

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2,618,653—**Sharp & Dohme—Cyclohexyl Methyl Ketones.**

2,619,447—American Cyanamid—Injectable Penicillin Preparations.
2,619,448—Gustav Larsen—Containers for Preservation of Bacteria Cultures.
2,619,484—Hoffmann-La Roche—6,7-Dihydro-5H-Dibenz [c,e] Azepine.
2,619,485—Lab. Dausse (Paris—Morphine Derivatives.
2,619,499—G. D. Searle & Co.—Aminoalkyl Esters of Alpha, Alpha-Diaryl-Gamma, Delta-Unsaturated Aliphatic Acids.
2,620,336—Commercial Solvents — Streptomycin Sulfonamides.
2,620,337—Upjohn — Adducts of Bisnorchola-trienic-22-Aldehydes.
2,620,338—Upjohn—Adducts of 22-Acyloxy-bisnor-5,7,9(11),20(22)-Cholatetraenes.
2,620,340—National Drug—2-Amino-4-Hydroxy-7-Pteridyls.
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2,621,175—Merck & Co.—6,7-Dichloro-9-(1'-D-Sorbityl) Isoalloxazine.
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2,621,182—Burroughs Wellcome — 2-Carboxy-methlthio-4-Aminopyrimidine.
2,621,183—Eli Lilly & Co.—Spirobarbituric Acids.
2,621,189—Eli Lilly & Co. — Chromanone Compounds.

Waving Lotions & Mechanical Properties of Hair

(*Continued from page 49*)

yielding, where elongation occurs with little resistance. This is normally referred to as the plastic or flow region. There is then a second region of load build-up, which has been called the post yield region of the load elonga-

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FROM HARRIS & BROWN T.R.J. 17, 323 (1947)

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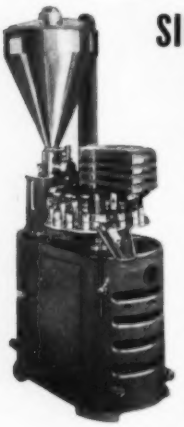

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tion diagram. It has been observed that a linear slope exists in this region, which has been shown to be a fundamental property of these materials. This linear slope has been called the *post yield slope*. In the following discussion it will be shown that the *post yield slope* is functionally related to the disulfide bonds.

Values of the post yield slope have been computed from data on wool obtained from the literature[2] and from test data of our own. Figure 3 shows some tabulated data for the slopes of different samples where the disulfide, or cystine, bonds have been purposely ruptured. It can be seen that as the number of disulfide bonds are reduced, the value of the post yield slope is also reduced. The same relationship holds for hair.

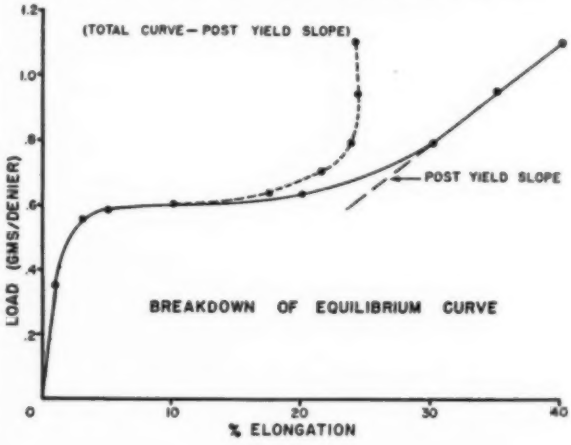

FIGURE 4

Breakdown of load-elongation diagram into two components.

Figure 4 is a composite load elongation diagram which incorporates the ideas just discussed. The total observed load behavior is given by the solid line. This has been assumed to be composed of two types of behavior, chain unfolding and the extension of the unfolded structure. The initial unfolding is represented by the early portion of the solid line and then by the dashed line that curves vertically upward. The limiting elongation reached by this unfolding operation is 24 per cent, which is consistent with the 25 per cent extension predicted from the Bamford theory. When the extension of the fiber has reached this point, the molecular arrangement is that of the unfolded form. In other words, the initial elongation is primarily the result of unfolding the molecules. After yielding, the disulfide bonds come into the picture. Extensions beyond 30 per cent are believed to come as a result of inter-chain motion which is primarily resisted by the disulfide bonds. As the number of disulfide bonds are reduced, the resistance to elongation in this region, i.e., the post yield slope, is decreased.

In summary, the load elongation behavior of hair can be divided into two main types of behavior. Occurring first, is the unfolding of the folded structure. This is resisted primarily by hydrogen bonds. Then, after most of the unfolding has occurred, the disulfide bonds begin to come into the picture. Thus, the effects

of chemical reagents which selectively affect either of the two main types of bonds can be studied by observing that portion of the load elongation diagram which is changed.

Swelling agents such as lithium bromide and water are known to affect primarily the hydrogen bonds, and therefore, lower the resistance to extension in the first portion of the diagram. The load at some value of elongation in this yield or flow region has been found to be a satisfactory quantitative measure of the hydrogen bond strength. The load at five per cent elongation has been arbitrarily selected for comparative purposes.

On the other hand, reducing and oxidizing agents which affect the disulfide bonds can be expected to show up primarily as changes in the post yield region of diagram. The post yield slope has been selected as the quantitative index of disulfide bonding.

With this type of analysis in mind, we shall go on to the study of what happens to hair when it is treated with waving lotions commonly used in the home permanent trade.

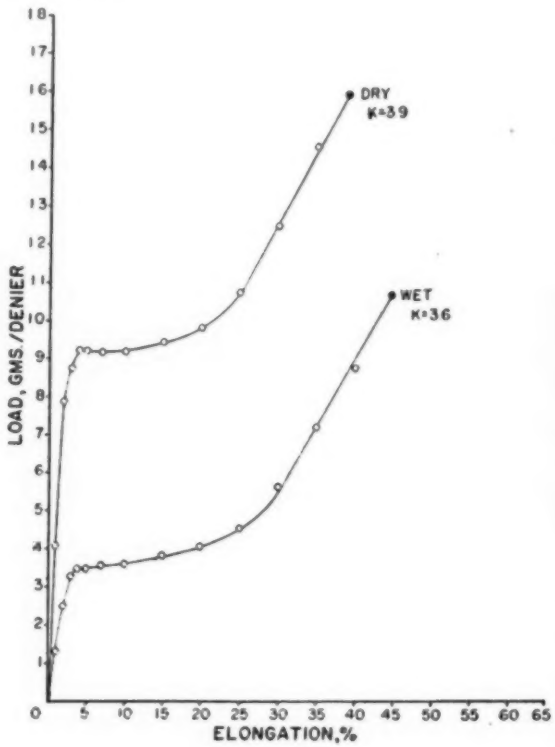

FIGURE 5

Load-elongation behavior of hair at 70°F—65% R.H. (dry) and 70°F—underwater (wet)

The first chemical treatment that comes to mind is the reaction of the fiber with water. This is the first step in any waving procedure. Figure 5 shows the difference between fibers tested at 65 per cent R.H. and those tested completely submerged in water. These tests, and all subsequent tests, were performed at 70°F. Each sample represents ten individual tests averaged together to compensate for the inherent variation found in

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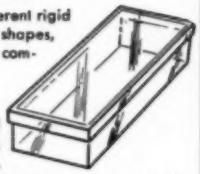

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natural fibers. The value of the post yield slope is listed with each curve. This represents the average of the ten individual slopes and is not necessarily the same as the slope of the average curve.

The major difference found between the wet and dry (65 per cent R.H.) samples is found in that part of the curve related to the unfolding. Water has weakened the hydrogen bonds and the result is consistent with the original discussion. There is also very little change in the post yield slope, 3.9 to 3.6. This is consistent with the knowledge that the disulfide bonds are only slightly, if at all, affected by water. Thus, the major effect of the water has been to decrease the strength of the hydrogen bonds and allow unfolding to take place more easily.

Most of the hair waving lotions are of the thioglycolate salt type. No attempt has been made to investigate the minor differences to be expected from slight variations in formulation of different brands. It is believed that they all react with hair in substantially the same manner. Individual hairs were treated with one of the commercial waving lotions by immersing them in a container of the lotion. The procedure followed in these treatments does not represent any recommended procedure and the treatment times are not at all consistent with normal application times. The attempt has been made to achieve a controlled laboratory experiment that will show in an idealized manner what happens to the load elongation diagram of hair, when the hair reacts with lotion.

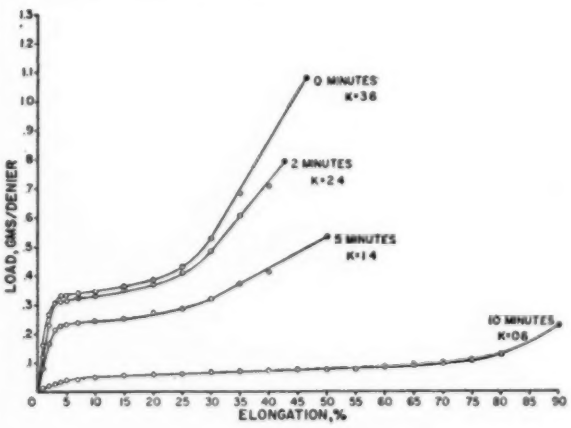

FIGURE 6

Hair fibers treated with waving lotion for varying times. K = value of post yield slope.

Figure 6 shows the effects of immersion in lotion for 2, 5, and 10 minutes.

After the treated hairs were removed from the waving solution, they were immediately placed in water and tested. No oxidation in air was allowed to take place in these tests. After two minutes in waving lotion, the post yield slope has been reduced by one-third, while only a slight drop is seen in the load at five per cent extension. After 5 minutes, the post yield slope has been reduced by almost two-thirds of its original value.

However, there now begins to be a difference in the resistance to unfolding. The drop in the load at five per cent elongation is about 30 per cent. By the time the fibers have been immersed ten minutes, the slope has been reduced to a very low value and there is very little load built up in the early portion of the curve. It is significant that the elongation at rupture has been increased considerably. It is believed that as a result of the extensive rupture of the disulfide bonds the main polypeptide chains slide by each other in true plastic flow. This results in a large non-recoverable extension before the fibers break.

If the logarithms of post yield slope values are plotted against the time of immersion, a linear relationship is found. Thus, the slope to be expected for any time of immersion can be determined by extrapolation.

After the hair is in this reduced condition and has been on the curler, it must be oxidized to its original condition. This is achieved by various means, most frequently chemical neutralization or air oxidation. The result desired is the same, namely, to reform the disulfide bonds. A chemical oxidizing agent has been used in this work to act as the neutralizer because of the short time necessary for oxidation to take place.

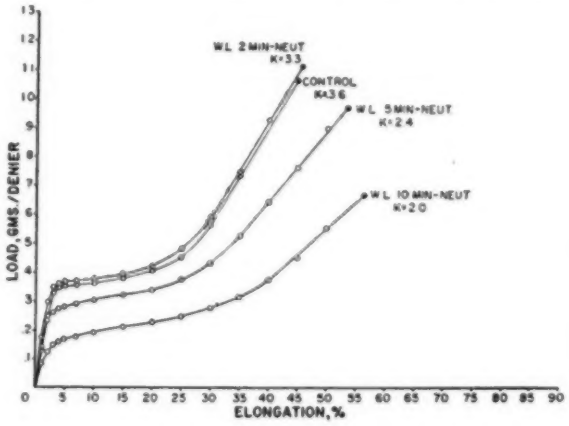

FIGURE 7

Hair fibers treated with waving lotion for varying times and chemically neutralized.

Figure 7 shows the load elongation behavior of hairs which were immersed with waving lotion for the same time as in the previous figure and then neutralized chemically. The sample immersed for two minutes in lotion has returned to its original condition. Its diagram is almost super-imposed on the untreated fibre curve. The sample immersed for five minutes has been brought back from a post yield slope of 1.4 to a slope of 2.4. It was not determined whether additional time in the neutralizer would have returned it any further. The sample which had been treated for 10 minutes has been brought from a slope of 0.6 to a slope of 2.0. In the last two cases it is possible that the fibers have been overprocessed and permanent damage has set in. There appears to be a critical limit of reduction, beyond which it is not possible to return to the original condition.

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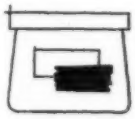

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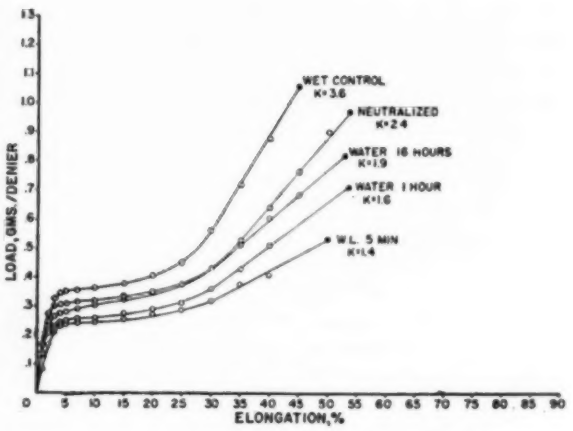

FIGURE 8

Hair fibers treated with waving lotion for five minutes with different after treatments.

Figure 8, shows the effect of treatments following a five minute immersion in waving lotion. The top curve is that of the original untreated fiber. The bottom curve is that of the hair immediately after removal from the waving lotion. Also included in the figure are samples treated with lotion and left in water for one hour and for sixteen hours, and the chemically neutralized sample. The sample washed for one hour shows a partial rebuilding, both of the load at five per cent extension and of the post yield slope. After the sample has been washed for sixteen hours it is rebuilt slightly more. The yield load has increased appreciably and the post yield slope has gone up to 1.9. The chemically neutralized sample has the highest value of post yield slope, i.e., 2.4. It is possible that further oxidation would increase this value further.

Analysis of the load elongation diagrams of these samples yields several conclusions. First, it has been shown that treatment of hair with waving lotion softens the hair and allows it to be extended much more easily than the untreated hair. The waving lotion first attacks that portion of the structure which accounts for the post yield slope, namely the disulfide bonds, then proceeds to decrease the force of the bonds resisting unfolding, namely the hydrogen bonds. It is believed that this second effect is closely related to the swelling which takes place when hair is treated with lotion.

It was then shown that neutralization rehardened the fibers and rebuilt the ruptured bonds. In the case of immersion times approximately corresponding to treatment times met in home waving, the neutralization returned the fibers to their original condition. However, if overprocessing occurs due to excessive exposure to the lotion, the fibers have not been returned to their original condition upon neutralization.

In summary, a technique has been described which permits the analysis of hair treatments in relation to the particular bonds taking place in the chemical reaction. It is possible to determine the effect of treat-

ments, damage resulting therefrom, and the causes of the damage. It has been shown that adequate neutralization is essential for complete restoration of fibers which have been softened with waving lotion.

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Hormones and Hair Growth

(Continued from page 45)

anterior pituitary gland. Reports from more than 50 doctors have shown a growth of head hair on their patients. The color and texture of the new hair was the same as that on the patient's head at the time of treatment. A small maintenance dose was used after regrowth of hair was induced. The hair grew only in the areas where hair had previously grown. Of course, there have been some negative results, but most of these can be attributed to improper dose levels used in individual cases. The minimum amount suggested for use has been 300 mg. but this total dose level varies greatly in individual cases.

Future studies planned for the dermatotropic hormone include the formation of it in a radioactive form. The dermatotropic hormone will be reacted with labeled sulfanilic acid containing Sulphur.[35] The radioactivity in the tissues will be determined by an end window Geiger-Mueller counter. The localization of radioactivity in the various glands can then be determined. We anticipate that it will show the piliary structure of the animal to be the target organ of this hormone, rather than a precursor hormone for a target gland.

We have reported that the effect of the three hormones: (a) androgenic, (b) estrogenic and (c) a new hormone, the dermatotropic hormone, on the growth of hair. The androgenic hormones bring about an increase in the sebaceous glands in the scalp of the human. The estrogenic hormones bring about a reduction in the sebaceous glands in the scalp of the human and the dermatotropic hormone is the hair growing factor of the anterior pituitary gland and controls the growth of head hair in humans.

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Dermatologic Data

(Continued from page 47)

From our experiments with sweat and the constituents of sweat, we were able to show that sweat is fungistatic and bacteriostatic at a pH below 7, but

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when sweat was concentrated it was even fungistatic on the alkaline side. The low pH of the sweat is due to its content of volatile fatty acids, lactic and ascorbic acids. These substances have been shown to have fungicidal properties which do not depend on the hydrogen-ion concentration produced by their addition to culture media. Of the lower fatty acids it is the propionic, caproic and caprylic, acids which are mainly responsible for the fungistatic and bacteriostatic action of the sweat. These substances must be present in the proper concentration to exert a fungistatic and bacteriostatic effect. Furthermore, they act best at a pH value well on the acid side.

When sweat is unusually alkaline, either a decrease in the content of those acids or the formation of their salts (sodium, calcium or ammonium) is indicated. The latter condition may be due to the interaction of the acids with substances found on the surface of the skin, or the salts of the acids may be secreted as such by the sweat glands themselves. It is also possible that ammonia is formed by the action of bacteria on urea and epithelium. This substance reacting with acids may form ammonium salts. Since our experiments have shown that it is usual for the salts to be less fungicidal than their corresponding acids, we can understand the decreased fungicidal action of alkaline sweat.

It has been indicated previously by Peck[6] and his group, as well as Keeney[7] and Theodore,[8] that the sodium propionate and other fatty acids were fungistatic and in proper concentrations fungicidal, not only against fungi which commonly cause dermatophytosis but even against C. albicans. The previously mentioned investigators, as well as myself, have shown that sodium propionate was bacteriostatic against many organisms such as the M. pyogenes var. aureus, M. pyogenes var. albus, Streptococci of the alpha and beta hemolytic group, Pneumococcus, Esch, coli, B. subtilis and B, enteritidis (Salmonella enteritidis). The effect against Pseudomonas aeruginosa (Bacillus pyocyaneus) is of special practical importance. Keeney[7] and his associates demonstrated that the propionates were superior in vitro in their anti-bacterial effect on M pyogenes var. aureus and the Streptococci of the alpha and beta hemolytic group than sulfathiazole.

The main factors which play a role in maintaining the proper pH of any skin surface are readily explained. First of all the pH of the skin surface is mainly due to the presence of the sweat with its content of the lower fatty acids, and probably lactic acid. Since these fatty acids exert their best bacteriostatic and fungistatic effect on the acid side once the pH goes over to the alkaline side, either by the action of materials placed on the skin surface or by the action of bacteria, these fatty acids become less effective as fungistatic and bacteriostatic substances. Therefore, it would be of importance to maintain a normal pH of the skin surface and to have these particular ingredients, which I have called the human antibiotics, at peak efficiency. Anything, including cosmetics, which tends to swing the pH over on the alkaline side of course renders them less efficacious as fungistats and bacteriostats.

Not only do our in vitro experiments on the actual optimum conditions for the bacteriostatic and fungistatic action of these fatty acids confirm the above statements but other experiments which we have carried out recently on adhesive tape dermatitis also point in the same direction.[10] We found that under an adhesive tape, the pH values slowly rise to the alkaline side and at the same time the bacteria multiply under the adhesive. This is especially true in those areas where we have an adhesive tape dermatitis. When the factors which go into the adhesive tape dermatitis are analyzed, we see that the dermatitis is really the production of an experimental malaria due mainly to the blockage of the sweat ducts by the ingredients in the adhesive tape mass. When this occurs there is a lack of sweat secretions and with it a loss of those substances which make up the acid protective cloak. The bacteria then begin to multiply and further produce a more alkaline pH on the skin.

The keratin itself has an important role in maintaining the pH of the skin surfaces since it has good buffering capacity against moderate amounts of both acid and alkali. The average well formulated cosmetic (including toilet soaps) which is to be used on the skin may show a pH somewhat at variance with that of the skin area treated. The normal buffering capacity of the acid mantle plus that of the keratin should be adequate to take care of this, particularly in case of brief contact with such a cosmetic. This does not mean, however, that any cosmetic preparation which is to remain on the skin for long periods of time should not be so formulated as to best maintain normal physiological conditions, i.e., without disturbing the normal pH of the acid mantle at its peak protective efficiency.

Absorption Through the Skin

It is important for us to understand some of the basic principles which govern absorption through the skin. In many instances while we point our formulation for special purposes to enhance absorption, as far as the cosmetic industry is concerned, we often wish to have our active principles in our cosmetics act in situ rather than undergo absorption and exert a systemic effect. It is for this reason that we should understand the principles which govern percutaneous absorption.

It has long been known that while some slight amount of percutaneous absorption occurs through the intact skin that the most important route of absorption is through the appendages. It has been pointed out by Rothman[9] and others that the electrolytes do not penetrate the stratum lucidum and are generally not permeable through the intact skin. The skin can be regarded, at least as far as the horny layer is concerned, as a rough network of horny lamellae with large holes in it which is permeable for ions as well as for large molecules. When electrolytes reach the stratum lucidum they do not go through.

The openings of the skin glands offer passage for

substances to contact the cells lining the walls of the glands. Thus they may eventually penetrate through the walls into the surrounding cutis and thence to the general circulation.

The pores of the glands are filled with air and fatty materials and it is difficult for water soluble substances to penetrate unless there is incorporated into the vehicle substances which permit them to mix with and eventually displace the contents of the gland openings, as well as the contents of the glands themselves. It is well known that inflammatory lesions of the skin cause the normal barriers of the skin to electrolytes to be broken because of the primary damage to the epidermis.[15]

A great deal of work has been done by a number of observers[9c,10,11,12,13] relative to the role of various bases in absorption through the skin. When Perlman[14] devised his test for identification of small quantities of pyribenzamine, we thought that it would be worth while to use this test to reevaluate again the role of ointment bases in absorption through normal and damaged skins. By means of this test we could demonstrate in the urine the absorption from an ointment containing pyribenzamine as much as one or two gammas of this substance.

In our experiments[15,16] we used a cream, an ointment, a carbowax base and a vanishing cream with concentrations of 10-5-2 per cent pyribenzamine hydrochloride and pyribenzamine base. We studied absorption of these substances through damaged and intact skin under various conditions.

Various bases used:

1. Cream containing sodium lauryl sulfate, glyceryl monostearate, stearyl alcohol, glycerine, white petrolatum and distilled water.
2. Ointment containing cholesterol, stearyl alcohol, white wax, anhydrous lanolin, white petrolatum and distilled water.
3. Carbowax base containing polyethylene glycol 400, carbowax 1500W and carbowax 4000W.
4. Vanishing cream containing stearic acid, sodium lauryl sulfate, arlacel 60, tween 60, arlex and distilled water.

From our experiments it was seen that a water soluble substance, such as pyribenzamine hydrochloride, penetrates best through normal skins in a water soluble base. Within limits, the greater the concentration of the pyribenzamine hydrochloride and the longer the period of inunction, the greater the absorption. We were quite surprised to find that the carbowax base was not as suitable a vehicle as far as penetration was concerned for the water soluble pyribenzamine salt as some of the other bases used.

We found that after inunction to a damaged skin the water soluble salt of pyribenzamine could be demonstrated in the urine from all four vehicles. Absorption was maximum from the vanishing cream, next best from the ointment and finally the cream base and the carbowax in the order given. The type of skin pathology, that is the amount of damage to the epidermis, and

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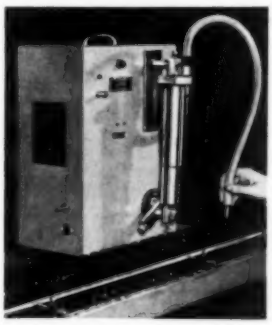

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the degree of loss of normal skin barriers to absorption were more important than the vehicle in determining the penetration. As healing took place the absorption decreased.

We also used the effect on the histamine wheal and flare as an indication of absorption of pyribenzamine through intact skin since not enough was absorbed so that the Perlman test could serve as an indicator. Using the histamine wheal and flare as an indication for absorption, it seemed to us that the cream base gave us the most consistent reduction of the flare and wheal. The time factor was important in demonstrating the maximum effects following topical application of the pyribenzamine hydrochloride. Since the vehicle represents a water dispersible cream, and since the pyribenzamine hydrochloride is also water soluble, it is readily understood why this vehicle gave us the best results. It is easier for that type of base to deliver a water soluble substance or allow water soluble substances to escape from it.

The water insoluble pyribenzamine base was best absorbed from a fatty vehicle after inunction to a normal skin. Here, too, within limits the greater the concentration of the drug, and the longer the period of inunction the greater the absorption. However the pyribenzamine base was better absorbed than the water soluble pyribenzamine hydrochloride even from a water soluble vehicle. Apparently it is the property of being lipoid soluble that is more important for absorption than the vehicle itself.

Another factor seems to be the viscosity of the base as it is easier for a base of low viscosity to be pushed into the gland openings. It is easier for lipoid soluble substances to penetrate through the intact skin and gain entrance into the general circulation because absorption is made through the appendages.

McKee, Sulzberger and Hermann and Baer[10] have demonstrated that absorption does not take place in any significant amount through the sweat pores in contradistinction to the absorption through the follicular openings. Since the skin contains a mixture of waxes, cholesterol esters, water, etc., complete insolubility of the substance in water and lipoid precludes absorption. The properties of the vehicles are important. Apart from its ability to bring the active substance into more intimate contact with the skin the vehicle should permit ready release of the substance and not hold it. Because chemical reactions may occur between the vehicle and the penetrant the former should be relatively inert. Our own experiments with absorption of the pyribenzamine base ointment vehicle well illustrates the above. Maximum effect on whealing and absorption on the intact skin was obtained in our experiments when a lipoid soluble substance was used in the fatty ointment.

According to Lane and Blank[13] when a concentration of a drug which is soluble in a given vehicle is increased within the limits of its solubility it may be assumed theoretically that the action of the drug on the skin will be increased in direct proportion to the increase in concentration. When the concentration of a drug

which is insoluble in a given vehicle is increased, the action of the drug on the skin may not be increased in direct proportion to the increase in concentration. The results of our experiments well support the findings of Lane and Blank.[13] The increase in the concentration of pyribenzamine base in a fatty ointment resulted in greater absorption. This was much more than the absorption of pyribenzamine hydrochloride which was water soluble from the same base.

Shelley and Melton[16] in their experiments using the whealing effect of histamine after inunction to study the role of the vehicle in absorption, reported findings which were quite comparable to ours. Histamine absorption through the normal intact skin was enhanced by increasing the concentration of the histamine in the vehicle and by using the histamine in a cream base. Histamine base was better absorbed than was the water soluble histamine salt. As they did, we found that carbowax 1500 was not suitable when a water soluble substance was used.

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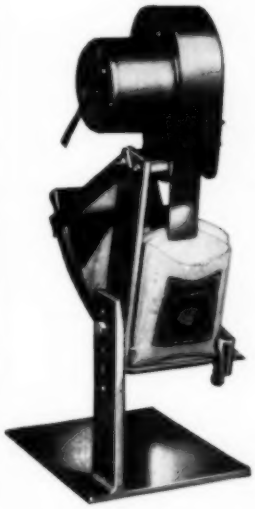

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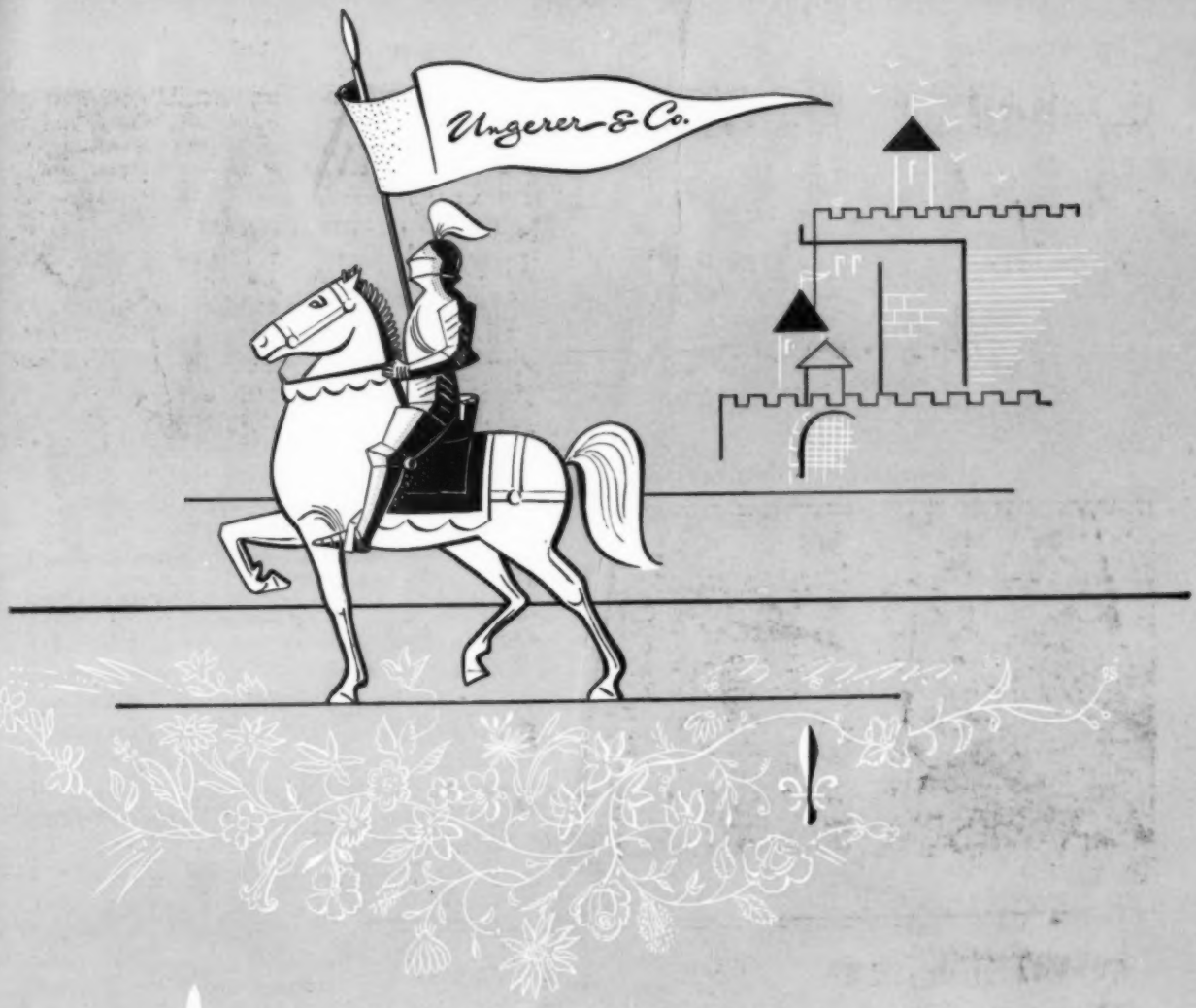

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